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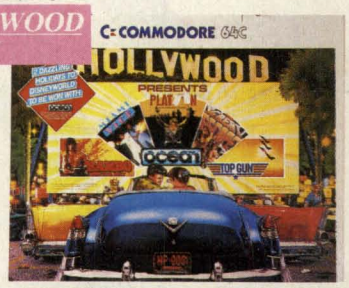

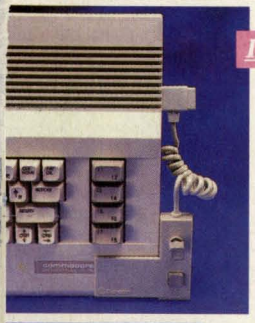

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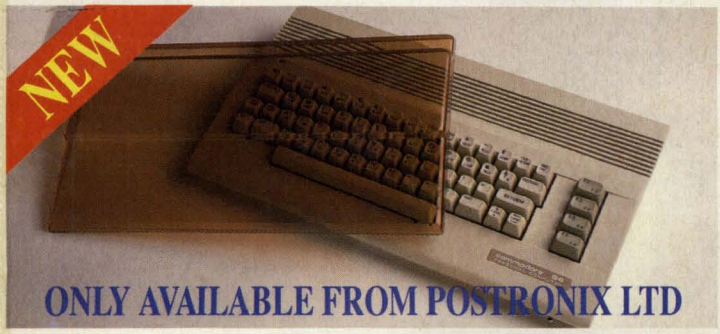

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Serial to Analog Digital Part II will be published next month.

CCI View

Dear CCI Reader

One of the most interesting results of being involved with Commodore computing world is the international dimension. In this issue of CCI we have reports of both U.S. and Canadian new software. German developments, especially on the Amiga scene, are also frequent. Australian games are finding their way into America and Europe. A Scandinavian programmed a large part of the U.S. software company Discovery's Oskar winner Sword of Sodan. And, of course, a substantial amount of U.K. created software finds its way back across the Atlantic. . . It has to be said that though countries like France, Spain and Italy do occasionally supply a game or two, they seem far less productive than nations like the U.S. or Canada. I think the reason is that they are not "natural" Commodore countries. They seem to have accepted the Spectrum or Amstrad or even the Atari ST and concentrate on those less internationally popular computers.

Yet outside these countries there is virtually no place in the world where Commodore does not dominate, in spite of the difficult period through which it passed two or three years ago. And there can be little doubt that machines like the Spectrum have already had their day and the 16 bit computers will make it increasingly hard to create or sell products for the machines favoured by the "non-Commodore countries". With one 8 bit exception that is. The C64 is not going to slip away as many of the other home computers have. For many of the developing countries, it will still be the ideal computer. They cannot easily afford the 16 Bit machines and the massive 64 software base, which is still being increased and improved, means that their computerisation on a large scale can be achieved reasonably cheaply.

Another factor is the very high quality of the programming today taking place on the 64. That is reflected in the quality of the games chosen for the year's CCI Oskars. The major advance that has taken place since the Amiga opened the imagination of the programmers is just too high a standard to throw away. Countries like Mexico, Argentina, the Middle East and even India are starting to create a user base within their populations that will grow but it begins at a much higher level than the more developed nations had reached at the introduction of the 64 some six years ago.

Even if the 16 Bit machines threaten to take over a larg'e part of the home computer scene in the developed countries, Commodore is unlikely to sell less than 1 million 64s in 1989. That could well increase as it becomes still cheaper to produce and the market for it increases in countries which as yet have hardly got further than abacuses. It will be interesting to look back in another six or seven years and see what [i]those[r] countries have done starting at the vastly improved level of technological achievement that the 64 has already today managed to capture.

Antony Jacobson
Managing Editor and Publisher

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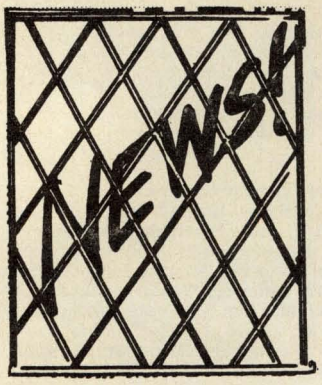

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Up to 10 graphics can be placed in any one document and sized to fit the desired layout. Also supplied are drawing tools — including lines, boxes and ellipses — while pages can be viewed in three zoom modes.

Also available from Electric Distribution is Migraph's Easy Tools, a GEM drawing accessory for Easy Draw 2 and Supercharged Easy Draw 2.

Easy Tools is said to increase the capability and drawing power of the Easy Draw products. When installed, it appears as a desktop icon and this allows the user to call up five tools — angulator, inquisitor, rotator, converter and polytext. Price: £49.95.

Performance barriers broken

The Quantum Prodrive AT series from Thame Systems is said to offer formatted capacities ranging from 42 to 170 Mbyte. Thames claims that average access times of 19m sec are possible in some applications.

Among the Prodrive's features is the method used to conect the drive to the AT bus. A small paddle board is fitted into one of the AT bus slots. This board, says the company, eliminates the need for an AT specification controller and reduces costs.

The drives also feature zone recording. This feature allows more sectors to be written on the outer tracks than on those closer to the centre, which is said to help provide higher data capacity.

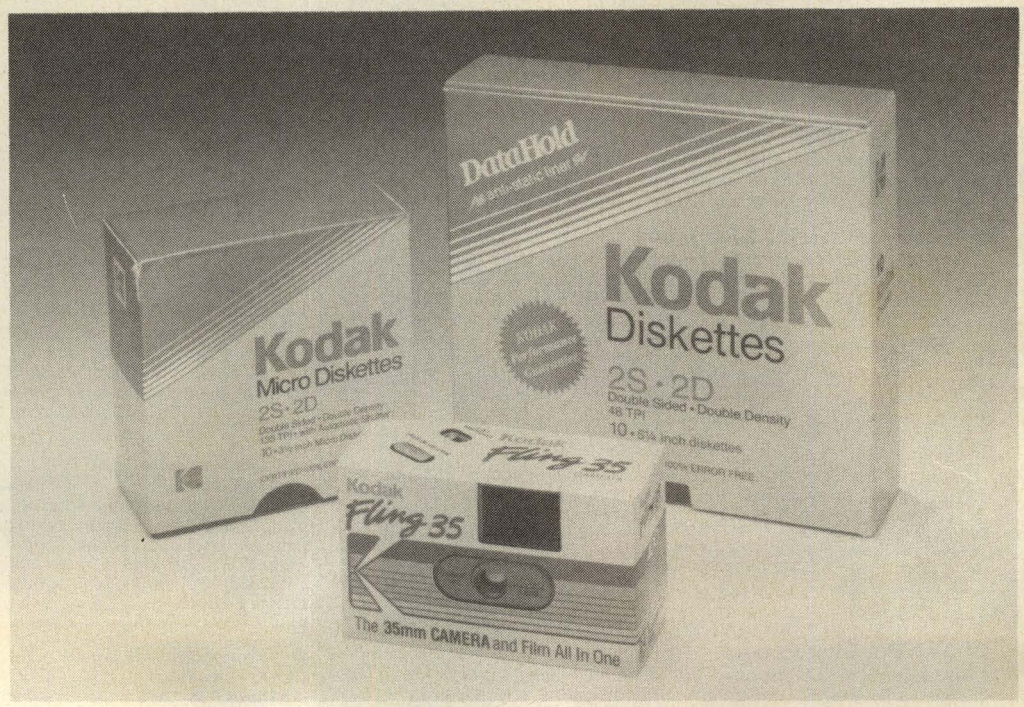
Factory automation

FACTORY Automation News, a new newsletter published by MIRC provides the latest in industrial automation market research findings every month. Factory Automation News contains timely information on: acquisitons, mergers and new Ventures; current and future market trends; the international and U.S. marketplace; distribution; investments; and major industrial automation players. Price: $295/1 year, $495/2 years. Contact: MIRC Europe, 55 rue Vandenhoven, 1200 Brussels, Belgium. Tel: + 32 (2) 762 2781.

Free 'Fling 35' camera with Action Orders

A free Kodak Fling 35 camera is offered with every order from Action Computer Supplies for five boxes or more of Kodak diskettes. At the same time, Action has reduced its prices for all Kodak diskettes.

Examples of the new prices are 5.25in, DS, DD, 48tpi diskettes at £9.00 per box of ten one-off, and 3.5in, 1.44/2MB micro diskettes for the IBM PS/2 (models 50, 60 and 80) at £39.60 per box of ten one-off; corresponding prices when included in order totalling over £100.00 are £6.55 and £34.45. Contact: Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middx HA0 1WL. Tel: 0800 333 333.



'Pin'acle of success

A top of the range 18pin colour printer from Honeywell Bull is said to outperform existing 24pin dot matrix printers in letter quality mode, the company tells us.

The Compuprint 4/68 features a double printhead which switches between letter quality printing at 231 pages an hour and draft printing at 391 pages an hour.

According to Honeywell Bull, in letter quality mode the 18 wires of the printhead are staggered to provide a matrix of 60× 18 dots per inch in one pass.

The printer's design allows for automatic switching between fanfold and cut sheet paper or envelopes. The device also allows for automatic fanfold parking, zero tear off on demand and optional pulltractors.

Able to handle paper ranging in width from 4.7 to 17in wide, 4 to 24in high and A2 portrait, the 4/68 can provide up to five copies.

Other features include double height and width characters, and compatibility with the IBM Graphics Printer, Epson FX/JX, Epson ESC/P and IBM ProPrinter XL.

A4

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CCI SAYS. . . . .
Sword of Sodan will not be relegated to the back of the diskbox for a long time to come (if ever!). If you buy one Amiga action game this year, this has got to be it.
CCI November 1988

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AMIGA A500 (Powerplay Pack 1) supplied with CBM 1084S Stereo colour monitor.
(N.B. This pack does not include a Modulator)

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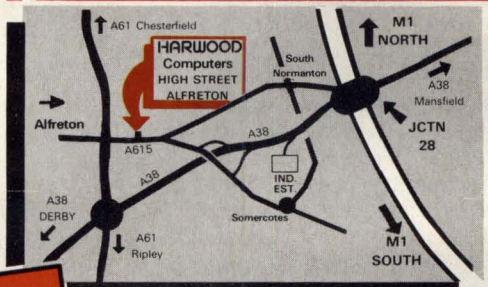

Please call and see us where we will be only too pleased to demonstrate the amazing Amiga in our showroom. Remember, we are not JUST another mail order company.
All prices are what YOU PAY, and there are NO HIDDEN EXTRAS. VAT & Postage are included and are correct at time of going to press.
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A.I. Markets To Triple By 1994

The U.S. artificial intelligence (AI) market is forecast to generate more than $1.5 billion in revenues by 1994, representing a three-fold increase over 1987's revenues of $457 million, a U.S. market research company predicts.

This strong growth and highlights of other expected developments are examined in a new study, "Artificial Intelligence Markets," published by Market Intelligence Research Company.

The report states that the most significant growth is expected to occur in the software market between 1988-1994, as expert systems, shells and developments tools, and AI languages expand in factory and commercial applications. These are the key area that will impact the AI market, in addition to LISP machines and general purpose computers. Also featured in this report are: consulting and training, customized programming and systems integration. Expert systems are forecast to be the fast growing segment of the AI software market. Price: $995. Contact: MIRC, 55 rue Vandenhoven, 1200 Brussels, Belgium. Tel: +32 (2) 762 2781.

Solid ink printer

LOOKING for the ultimate printer? According to Technitron Data, the Dataproducts SI 480 solid ink printer is superior in print quality to any printer currently on the market (Oh?).

The SI 480 possesses a higher dot resolution than laser printers, with 480 × 240 dot-in in executive quality mode. In letter quality and graphics mode, a 240 dot/in resolution is available.

Solid ink technology ensures the ink is applied directly to the paper without involving a medium such as ribbon or tape. Capable of printing on all paper types, the ink in the SI 480 is fired through 32 nozzles in the printhead. Each character, formed by solidified ink, has a sharpness of focus and a surface sheen similar to the effect achieved by embossing.

The printer has a low noise level in both stand by and printing mode as well as good paper handling. Equipped with autobin capacity of 120 or 500 sheets, an envelope feeder, cut sheet and single sheet manual insert and continuous paper handling facilties, the printer caters for all user requirements.

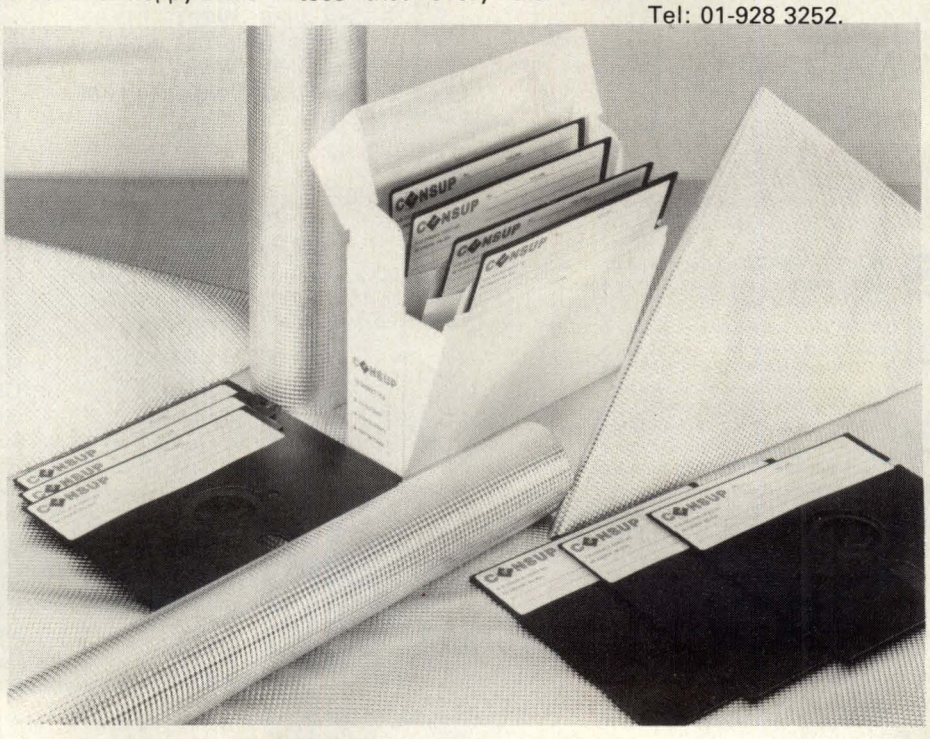
Printer emulations include Diablo 630, IBM Quietwriter II, IBM Graphics Printer, IBM Proprinter and Dataproducts 8070. The SI 480 has a library of 26 font cards as well as resident Courier and Gothic fonts.

Pre-formatted floppies

A new range of preformatted 5¼ inch floppy disks are being offered to PC users at prices lower than most unformatted disks, claims the supplier, Consup Ltd.

The company tells us that its preformatted range will save users time and guarantees that every disk will work first time. Each disk is checked and formatted to the IBM PC standard.

Available for immediate delivery, the disks are priced at £12.50 for ten 5¼ inch Double Sided Double Density Disks and £25.00 for ten 5¼ inch High Density disks, each capable of storing 1.2 Mb of data. A discount of 20% is available on orders of ten boxes or more. Contact: Consup, Finck Street, Waterloo, London SE1 7EN. Tel: 01-928 3252.



Low-cost optical recording

PA Technology's Cambridge laboratory is developing an optical recording medium which uses a photo-thermal effect to develop relatively cheap, high data density recording tape.

By shining a small point of laser light on to the surface in short bursts, producing a series of "digital dots" representing information, the resultant rapid local heating turns the normally blue, almost opaque material to near transparent yellow throughout its thickness.

Present optical recording systems produce surface deformations that are read by reflection. The PA material allows playback by light transmission. If data were recorded in lines across a tape, a suitable line of detectors under the tape could read a line at a time as the tape moves past, giving a rapid data rate.

Fiber Optics Market

A new report, "Fiber Optic Communications Equipment Markets," has just been released by Market Intelligence Research Company of Mountain View, Calif. The report finds that total revenues for fiber optics were $374 million in 1983. By 1987, those revenues had increased to over $1 billion. Growth will continue, and revenues are projected to reach $2.3 billion by 1990. In 1993, revenues will top $4 billion, with an increase from 1992 of more than $800 million.

Price: $995. Contact: MIRC Europe, 55 rue Vandenhoven, 1200 Brussels, Belgium. Tel: +32 (2) 762 2781.

Galdragons Domain

Galdregons Domain, has been in development for well over a year. An interactive fantasy experience. Galgregons Domain features a full perspective landscaped map. many castles, towers, forests, taverns and dungeons to explore, in stunning 3D.
Digitized sound effects and over five hundred different characters with which to interact.

The legends surrouding the five gems of Zator were well known. Each of the gems gave magical powers to the holde, the power of a gem could be used as a force for good or for evil, and that when the five gems were brought together the holder would possess powers beyond all other mortals.

'You take the role of a barbarian hero, unequalled in the skills of combat amoungst the men of the northlands.

To play Galdregon's Domain successfully you must not attempt to kill all the creatures, human or otherwise that you meet, although your strength in combat is better than most of the characters, you can't possibly take them all on and win. You must employ stealth and cunning to outwit your opponent.

The basic aim is to recover the five gems, each held by a powerful creature, and return them to King Rohan. You can be sure that the gem holders will be no push over, so before you attempt to take them on try to gain some knowledge of their strength and weaknesses. The best sources of information will be the local inns dottd about the countryside. Price: £19.95, available for Amiga. Contact: Mercury House,Calleva Park, Aldermaston, Berks. RG7 4QW.

Say 'cheese' and take a byte

FUJI Photo FIlm, of Japan, has taken the next step forward in still electronic cameras by using a "chip" memory to store the images. In this way, the Fuji camera avoids the moving parts associated with a rotating disk so improving long term reliability. Presently, the chip memory can hold only five fully scanned images. The company is working with Toshiba on a design that will hold 40 frames.

Eventually, these cameras are likely to oust conventional still film cameras from the market, which is why Fuji, Kodak and Agfa are all actively involved.

But the cost of these cameras is high. Prices range in Japan from Y70,000 (£315) for a Sony to Nikon's Y450,000. Users to date are mainly newspaper photographers and other professionals. (Of course, we at CCI are on the list for a review copy).

Although picture quality has yet to come up to good 35 mm film standards, a strong selling point is the ability instantly to play back the images through a domestic colour television set, eliminating film processing.

Shanghai Warriors

SHANGHAI Warriors, by Players, is a game about mercenaries led by the evil 'Snide Gantree' who have stolen a US NAVY Submarine, threatening to devastate the worlds' capitals with nuclear destruction. Attempts by the combined forces of MI5 and the CIA to destroy the sub have failed. The governments concerned have taken the only course of action left open to them, send in the latest graduate of the famous 'Dragon Temple Karate Academy'.

Shanghai Warriors is a sabotage mission set against 3 levels of arcade style scrolling action. Price: £1.99, available for C64. Contact: Mercury House, Calleva Park, Aldermaston, Berks RG7 4QW. Tel: (07356) 77421.

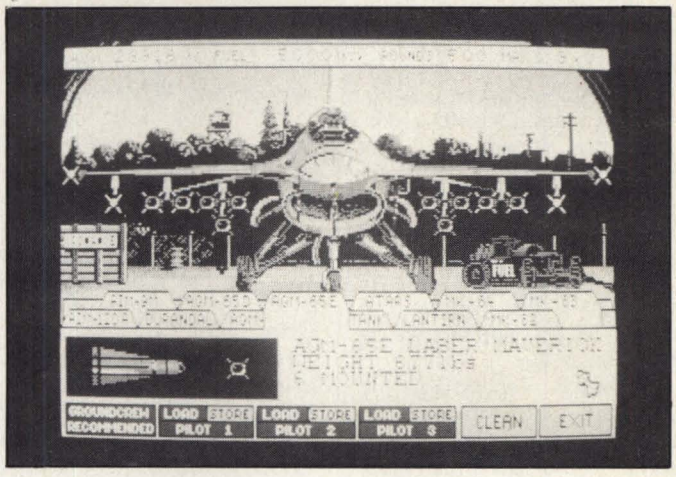
F-16 Combat Pilot

DIGITAL Integration have announced the release of F16 Combat Pilot for the PC in the first half of February 1989, priced £24.95. The Commodore version will follow about 4 weeks later, price £19.95 disk and £14.95 cassette and the Amiga version shortly after, price £24.95.

Unlike any other simulation (they say), "F-16 Combat Pilot" takes you from the crewroom, to the hangar, through pre-flight briefing and then into the cockpit of the latest high-tech version of the F-16 Fighting Falcon. There are 8 squadrons, each with a combat zone of 20,000 square miles and on top of this — Operation Conquest — a multi mission strategic campaign.

In the simulation, the cockpit and armaments are based on the latest equipment. In addition to the infra-red weapons the F-16C has laser targeting and the LANTIRN target recognition and selection module which also enhances night visibility. Also included are the latest AMRAAM missiles which have a range of over 30 miles.

Connect 2 computers together and both pilots can indulge in a one on one dogfight — the ultimate experience at supersonic speeds. The 100 page manual contains battle tactics, enemy aircraft and weaponry descriptions, and an easy to follow explanation of the F-16s controls and armaments. Contact: Digital Integration Limited, Watchmoor Trade Centre, Watchmoor Road, Camberley, Surrey GU15 3AJ. Tel. (0276) 684044 or 684959.



"A rose by any other name . . ."

FROM 1 November 1988, Sentinel Software was licensed to use the name WordPerfect United Kingdom.

The company was formed nearly four years ago to handle the distribution of the word processing package WordPerfect.

According to managing director Peter Fergusson, Sentinel Software has taken sales of WordPerfect from around 10 units per month three years ago, to approximately 2,000 units per month today.

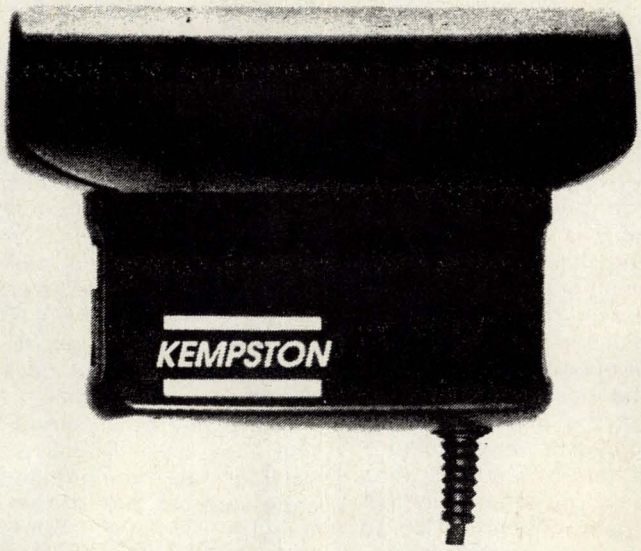
"Being licensed to use the WordPerfect name for the remaining two years of our initial contract with WordPerfect Corporation will clarify our role to users and strengthen our position as the UK representative of one of the leading software companies of the world," he said.

Hand Scanner

KEMPSTON'S Daatascan is a hand held scanner for the IBM PC and 100 per cent compatibles.The software provided incorporates windows, pull down menus and icons.

Images produced by Daatascan can be incorporated into the pages of Daatafax (a computer based personal organiser) and can also be imported into desktop publishing packages like Ventura, Aldus PageMaker and Fleet Street Editor.

Daatascan can be used in systems with Hercules, CGA, EGA and VGA displays. Price: £275.00 incudes software and an inteface card.



Hey Computer Face!

FIRST came the calculator on wrist watches. Now a Cambridge, Massachusetts, company has shown a full 80-character/25-line computer screen which is not much bigger than a matchbox and weighs under two ounces. You hold it in front of one eye, or wear it, like glasses. The screen image appears to be two feet away.

Reflection Technology Inc suggests that, with volume manufacturing, the new screen could cost under $100, and that products using it could be out in a year.

IBM cleans up its act

IBM, previously perceived by many as the insensitive bully of the computer industry, has made a commitment to reduce its use of chlorofluorocarbons (CFCs), currently running at over 100 tons a year.

CFCs have been used in IBM's factory cooling and cleaning systems, depite widely publicised evidence that they damage the ozone layer which protects the Earth from the Sun's radiation producing the 'Streetwise Affect'. Other industries, such as air conditioner manufacturing, have been accused of disregarding CFC levels. IBM now claims that it intends to reduce its use to under 60 tons a year, at a cost to the company of over £4 million.

IBM has also made a £3.6m donation to the United Nations Environment Programme (UNEP), in the form of equipment to support the Global Resource Information Database (GRID), a computer-based environmental information service. GRID is an important source of information needed to assess environmental changes, and is used to track key features such as climate, atmosphere, ocean movements, renewable natural resources and the long range disposal of pollutants.

The electronic waiter

AUTOCALL Communications has launched an ingenious new device, which it claims will do away with the pad and pencil in most restaurants and hotels, once and for all.

Called the Compad, it is a hand-held unit, which is used to automatically transmit orders from waiters and waitresses to the kitchen or bar, while at the same time recording each order in the cash register.

This ensures that nothing comes out of the kitchen, without being correctly added to a customer's bill, and also means the waiter or waitress no longer has to waste time, running backwards and forwards to the kitchen.

The Compad consists of a touch-sensitive keypad and a visual display panel. To place an order, the operator enters the table number, after which all functions are menu-driven.

A prompt appears asking for the number of covers to be entered, then follows with a request for the order.

Items are ordered using a code number and a description, and its price appears when the number is entered.

'Failsafe' security

INTERNATIONAL Data Security has developed a failsafe personal computer data security device known as Datavault. The system is suitable for use with the IB PC range, the PS/2 model 30 and compatible computers.

According to IDS, Datavault is operating system independent. It comprises a board measuring 3.5 × 1.5 × 0.5in which plugs into any expansion slot on the system board.

The system also comes with Vaccinate, the anti-virus software.

A key advantage of Datavault, says the company, is that users are unaware of its existence until they attempt to voilate the security mechanisms.

The device supports log on IDs and passwords as well as logging failed access attempts. It prevents booting off drive A and the use of a hard disk removed to another system. Even if Datavault is removed, the hard disk cannot be accessed.

The device also encrypts and decrypts all data and information on the system hard disks and each key is unique to prevent the use of another Datavault to read data.

Other features of the device include Tea-Break, which allows the user to leave the computer suspended in the middle of an application, and Time-Out, which locks out the keyboard after a given time.

DAT cassette storage

THE Giga 1200 system from Gigatape of Erith, Kent, is said to store 1.2Gbyte of data on a single DAT — digital audio tape — cassette. This cassette, half the size of a standard audio cassette is claimed to be suitable for use in virtually all computers.

It has two read/write heads, mounted in a drum spinning at 2000 RPM. These heads record data at 192kbyte/sec, using helical scan techniques, on a tape measuring 3.81mm wide. With an effective tape speed of 3.13m/sec, the tape stores data at 61,000bit/in.

Each DAT cassette contains 60m of tape, but the rotating drum technique translates this into a virtual length of 11,280m. The tape contains 480,000 tracks, each composed of 196 blocks, with the blocks storing 32byte. The company claims the required block or track can be found in an average time of 20sec.

Giga 1200 is said to be suitable for use with most computers, interfacing through SCSI, QIC02 or Pertec ports. It can be supplied in standalone or rack mounting versions.

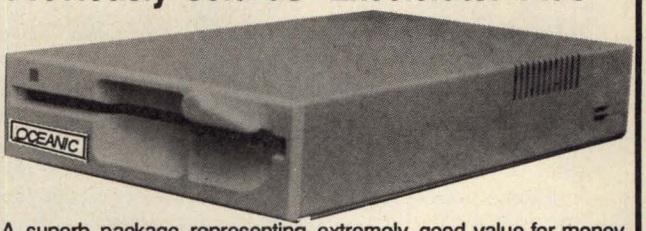
Reed-Solomon error detection and correction techniques give error rates of 1 in 10^{15}. As they say, Dat's quite a specification . . .

Evesham Micros

OCEANIC OC-118

NOW WITH NEW 'JIFFY DOS' !

Previously sold as 'Excelerator Plus'

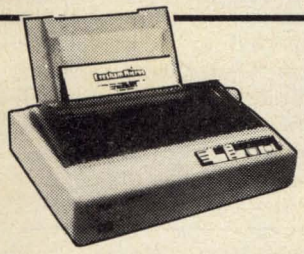


A superb package representing extremely good value for money, combining the Oceanic OC-118 disk drive (previously sold as 'Excelerator+') and the sophisticated GEOS system. Said by COMPUTE's Gazette to have "dramatic improvements over the 1541 in quality and reliability", the drive is a stylish and attractive compact unit featuring a direct drive motor and its own external power supply. GEOS brings the power of a graphic interface and integrated disk turbo to your '64 and includes geoPAINT, a graphic workshop, geoWRITE, a WYSIWIG word processor and many Desk Accessories. Many more extensions available - see below.

Oceanic OC-118 & GEOS £129.95

Oceanic OC-118 & GEOS plus *Freeze Machine* £149.95

All prices include VAT/delivery



star LC-10

Best-selling CBM ready printer

Now the established market leader in this price category, the LC-10 incorporates many advanced features for such a low price. Its facilities, not normally available in this price range, include 4 NLQ fonts (with 96 combinations) and paper parking (use single sheets without removing tractor paper). Good value 7-colour version also available, which will also accept standard LC10 black ribbons. LC10 available either in '64/128 ready form or as parallel version for Amiga users. Please state your computer type when ordering.

Only £199.00

Colour version also available,

Only £249.00

Prices include two extra black ribbons free of charge

GEOS Applications

GEOS 64	£24.95	GEOPUBLISH	£32.95
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GEOWRITE WORKSHOP	£24.95	GEOCALC 128	£32.95
FONTPACK+ 64/128	£16.95	GEOFILE 128	£32.95
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GET THE SLIMLINE '64

Your '64 could look like this!

Why put up with an old fashioned looking computer? Fit this smart and modern looking new case to your '64 - it will look and feel like you are using a brand new computer. This high quality injection moulded case is simple to fit and gives a lower keyboard height. Reject the old image and order one *now*.

Only £19.95

FREEZE MACHINE for speed, power and ease of use

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- ❑ many more useful features!

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For speed, power and ease of use it has to be Freeze Machine, probably the most effective backup cartridge on the market! Incorporating two types of fast load routines you can SAVE and reLOAD your favourite games in as little as 10 seconds and no more than 18. Numerous invaluable facilities available, including a built-in reset button. Utility Disc V3.0 also available to complement usage of the cartridge. It allows complete transfer to disk of many tape-based programs that load extra parts, eg. Gunship, Last Ninja, World Games, Supercycle. A very useful add-on.

Utility disc only £7.95

Selected Products

DOUBLER '64 ..... Makes perfect tape backups every time. Consists of hardware and software. Requires access to two data recorders. Very easy to use, only **£12.95**

ICONTROLLER ..... Natty little keyboard mounted cursor controller, ideal for icon-driven applications like GEOS **£11.95**

DATA RECORDER ..... CBM compatible, same as C2N/1531 but cheaper and includes pause control button **£24.95**

DOLPHIN DOS ..... Parallel operating system for use with 64/128 and 1541 disk drive. Fantastic speed increase on LOAD and SAVE whilst maintaining CBM disk format. Many extra DOS & BASIC commands, includes built-in monitor and Centronics printer driver **£69.95**

DISC DISECTOR V5.0 ..... Disk backup/utility package, very powerful **£19.95**

1541 PHYSICAL EXAM ..... Consists of digital alignment disk and drive fault diagnosis software to check and correct 1541 head alignment. Includes quiet drive stops **£39.95**

1541 QUIET DRIVE STOPS ..... Silences 'knocking' noise with 1541 drives **£4.95**

AZIMATE 3000 KIT ..... Kit to check and adjust data recorder head alignment **£6.95**

AMIGA 500

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Contains Amiga 500, TV modulator, Mouse, Joystick, Mouse Mat, 5 disks of public domain software, 'Photon Paint' and 7 top games ('Karate Kid II', 'Goldrunner', 'Grid Start', 'Demolition', 'XR 35', 'Atax' and 'Las Vegas'). Total retail value of extras supplied is £270.45.

All this for only £399.00

Philips CM8833 (Colour monitor suitable for Amiga 500) **£229.00**

Philips CM8852 monitor as above, but higher resolution **£299.00**

Cumana external 5.25" floppy drive 40/80 track 'Transformer' compatible . **£159.95**

Disks & Boxes

25 bulk packed 5.25" DS/DD disks with sleeves, write protect tabs and labels. Good quality and fully guaranteed, only **£13.95**

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Higher Temperature Superconductors

TOSHIBA, the Japanese electronics group, has recently reported advances using new higher temperature superconductors in electronic circuits.

These superconductors lose their electrical resistance when cooled to liquid nitrogen temperatures, whereas previous materials needed liquid hilium systems at very high cost. Superconduction, applied to electronic chips, automatically implies very fast devices with very little power consumption — both vital matters in modern electronics. The pay off? Ultimately, extremely small, very powerful computers are likely.

The Japanese team has also succeeded in making a switching device using two films separated by an insulator. This exhibits the "superconductor tunnel" effect in which a changing electrical current can produce sudden electrical resistance changes, making it possible to discriminate digital 0 and digital 1, the basic binary code signals of computers.

The Managing Information Blues . . .

HARD times are ahead for those managing information networks in medium and large organisations according to a report from UK-based Butler Cox, a European management consultancy in information system strategy.

The report claims managing networks for growth, technology changes, change of use and similar matters, is growing by 20 to 50 per cent as banks, airlines, newspapers and many other organisations become very more dependent on them.

The report says that most managers are forced to use a collection of separate and incompatible network management tools, often dealing with up to 10 different suppliers. An integrated management system is unlikely to appear, says Butler Cox, "until well into the 1990s."

"World's fastest dial up modem"

TRAILBLAZER is currently claimed to be the fastest dial up modem in the world, capable of transmitting data at a revolutionary 18,000 bps without data compression. As well as being 15 times faster than the average modem it also offers V21, V23, V22 and V22 bis compatibility, automatic speed selection, autodial and autoanswer, its own proprietary error correction in 'FAST' mode, as well as MNP, Kermit and other industry standard Protocols.

TrailBlazer Dowty, its manufacturers claim, offers fast, cost-effective, accurate transmission of data over conventional telephone lines and is well suited for the volume data user. Price: £1,395. Contact: Dowty Information Systems, Tel: 0635 33009.

Thinnnn Removeable Storage

A removable mass storage device which does not limit you to a single storage capacity is available from Westek. of Helkinham, Wiltshire.

Known as Plus Passport, the device is said to set higher standards for performance, convenience and reliability.

With both 20 and 40 Mbyte hard disks interchangeable in the same unit, other features of the device include: 1:1 interleave; Hyperwrite, a feature said to make writing to disk appear instantaneous; and a read ahead buffer.

Westek says that, at 1.25in, the product is the thinnest removable hard disk currently available and adds that the device is suitable for the PS/2 range and for IBM PC.

Fiber optic sensors in medicine

A new report, "Fiber Optic Sensors in Medicine II," has just been released by Market Intelligence Research Company of Mountain View, CA. The report finds that fiber optic sensors are used in a wide variety of medical applications. The most common measurement for which they are used is temperature, particularly in hyperthermia applications, of which fiber optic temperature sensors comprise an estimated 90 per cent of sales.

This industry is mostly driven by the increase in the U.S. elderly population. As the average life expectancy, rises, and as the population increases, MIRC tells us there will be an associated rise in the number of surgical procedures performed, particularly open heart surgery, in which fiber optic monitoring equipment is principally used. In addition to the escalating number of cardiac interventions, cancer incidence is also expected to grow with increased longevity. Contact: MIRC Europe, 55 rue Vandenhoven, 1200 Brussels, Belgium. Tel: +32 (2) 762 2781. Price: $995.

Rekeying trouble? No more!

FORMSCAN'S Codem Disk Reader is designed to transfer word processing documentation from diskette to PC WP packages.

It cuts out the need for rekeying and does not tie up the source system during the conversion process. Formscan says it should be particularly useful for users replacing dedicated word processors with PCs or clones, or where more than one system is in use in a department.

Formscan's software will read most 8in diskettes. The Codem Disk Reader translates data to a variety of popular word processing software, including MultiMate and WordStar.

Sagesoft Software upgraded

SAGESOFT of Gosforth, Tyne and Wear, has released new versions of the Retrieve database program and the PC Planner spreadsheet package. Sagesoft have also announced the release of a job costing module for the Sage Businesswise accounting range.

Retrieve III is a single user menu driven relational database management system. It includes such features as pop up windows, the ability to 'paint' data entry and reporting screens.

Also available is PC Planner, a 1-2-3 style spreadsheet available in two versions. Release 1 is priced at £69, while release 2 is £99. Release 2 offers some of the key features of Lotus 1-2-3 release 2 as well as full release 2 macro compatibility.

Boost your PC

A 25MHz version of the 78X coprocessor board has been launched by Definicon Systems. According to Defincon, the card is simple to install and use and is suitable for any IBM PC or compatible.

The card has up to 16Mbyte of DRAM, bringing the power of a minicomputer to applications running DOS. Software tools available include: C; Pascal; Fortran 77; and Basic, along with a symbolic debugger.

The unit also has a background loader which provides file system support using either DOS 2.0 or 3.0. Definicon says this allows programs to run in the background at the same time as DOS running in the foreground.

Multipurpose memory

A multipurpose memory card from Comtech is said to be the first such device introduced which extends the memory of an IBM PC or compatible from 640 to 704k.

The 10PC is claimed as suitable for use with all software packages running on the PC range under DOS. It measures 4in long and fits any IBM PC expansion slot, including those in portable computers. Also provided on disk is a software suite.

According to Comtech of Heathfield, Sussex applications for the board include: 704k for DOS; 640k for DOS and a 64k memory bank; topping up machines with 512k of RAM; or as a card holding two PROMs. Multiple cards can be used to add up to 192k of RAM or PROM.

Cristie Duo Series

The Cristie Duo Series provides full back-up and data interchange facilities for PC users by combining a 47MB tape streamer with either a 3.5in or 5.25in Copydisk diskette drive in a single unit.

"Like Cristie's well-known Copydisks, these Duo units provide PC users with easy facilities for swapping programs and data between existing PC/XT/AT machines with 5.25in drives, and the newer PS/2 and other PC compatible machines with 3.5in drives: at the same time, the built-in tape streamers provide full back-up facilities" says Action sales manager Roger Bulkeley.

The Duo Series has three models: the Duo5 has the 47MB tape streamer operating at up to 2.5MB/min, with a PC.xT compatible 360K, 5.25in copydisk facility; the Duo5+ is similar, but has a 5.25in diskette drive switchable from 360K to 1.2MB, PC.AT compatible. The Duo3 has the tape streamer operating at 1.3MB/min, with a 720KB, 3.5in copydisk facility. All models are connected by simple adaptor cables that attach directly to the floppy disk controller, thus avoiding the use of card slots of microchannels.

Prices: £1,149.00 for the Duo5, £1,199.00 for the Duo5+ and £1,129 for the Duo3. All are covered by Action's extended 24 months warranty. Contact: Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middx HA0 1WL. Tel: 0800 333 333.

Durable Diskette coating

XIDEX claims that the production process for its Storage-master range of 3.5in diskettes is the world's most advanced.

A new coating formula which uses smaller, denser and more uniform particles is at the heart of this process, and according to Xidex gives a visibly smoother overall surface and unmatched reliability and a mould for the shells is said to virtually eliminate jamming.

Efficient PC files

XPEDIENTS has released software which guarantees PC users efficient file recording and which eliminates wasted disk space.

Disk Organiser tells users everything they need to know about what's on their disk without having to load and run them. It can supply information from a number of start points addressed in any combination — by directory or folder, file name and contents, disk ID and so on.

According to the company, the package will show when each file was originated and the data of the last amendment. It will also show file size, type and remaining space on the disk.

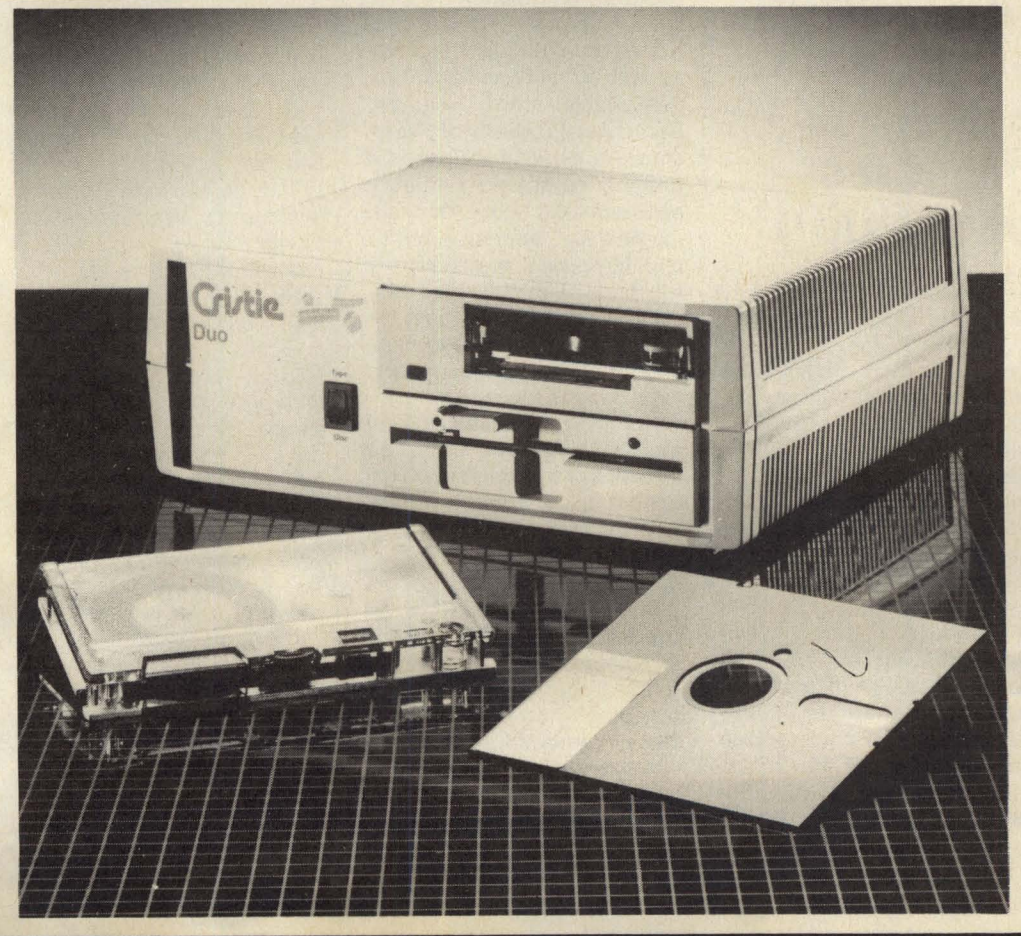
Disk Organiser is available in 3½ and 5¼in versions in formats for systems running under MS DOS, with versions available for Atari ST, Amstrad PCW, Commodore Amiga and Apple Macintosh in development.

Screen power

TAXAN claims that its new Ultravision 1000 monitor represents the very latest in screen technology and offers the kind of screen power previously only associated with engineering workstations.

It's an ultra-high resolution, triple scanning 20in colour monitor for the IBM PS/2 and AT, with a screen which can switch automatically between VGA, 50 and 64KHz screen frequencies. As a result, Taxan says, a single screen workstation can be used for a combination of machine specifications and applications such as WP, desktop publishing and CAD/CAM, which would otherwise require different resolution screens.

In VGA mode the monitor provides a non-interlaced display resolution of 480 × 640 pixels. When used with industry standard high resolution graphics controller cards, however, it can provide a 60Hz resolution of up to 1280 × 1024 pixels. Price: £2,699.



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Le Bleep

BRITISH Telecom has introduced Le Bleep, a miniature paging device which links up with a central computerised voice recording system.

Le Bleep fits in a handbag or pocket, and is available in a selection of bright colours.

Le Bleep users are allocated a personal access number which they call when the pager is activated. Messages will then be played back automatically.

The service charge pays for the computerised answering service and a choice of any two areas in which the user wishes to be contacted. Additional areas can be included for an extra 50p per month.

"The beauty of Le Bleep," said BT Mobile's director of marketing Charles Baker, "is that you can give your personal Le Bleep number to as many or as few people as you want. The choice is yours, and so is the freedom to come and go as you please." Price: £99.00 plus a monthly service charge of £12.

Cristie Duo series from action provides back–up

Now available from Action, Christie's three Duo units provide PC users with easy facilities from swapping programs and data between existing PC/XT/AT machines with 5.25in drives, and the newer PS/2 and other PC compatible machines with 3.5in drives. In addition, the Duo's built–IN 47MB tape streamer provides full back–up facilities.

The duo5 has the 47MB tape streamer operating at up to 2.5MB/min, with a PC.XT compatible 360K, 5.25in copydisk facility; the Duo5+ is similar, but has a 5.25in copydisk switchable from 360k to 1.2MB, PC.AT compatible. The Dou3 has the tape streamer operating at 1.3MB/min, with a 720KB, 3.5in copydisk facitlity. All models are connected by simple adaptor cables direct to the floppy controller, thus avoiding the use of card slots or microchannels.

Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Wembley, Middx, HA0 1WL. Tel: 0800 333 333; Telex: 922493 Action G.

EC levy on Japanese printers

THE European Community, after months of discussion, has imposed an anti-dumping levy of up to 47 per cent on Japanese printer manufacturers.

The legislation has been expected for some time now and several of the major Japanese manufacturers have already taken steps to circumvent it.

Fijitsu has increased output at its Spanish plant and eventually intends to produce all of its printers for the European market there; Seikosha has set up a European plant in West Germany.

According to Seikosha U.K., they are only selling the EC-made printers in the EC countries.

Wheel Ease

USERS of three top selling word processing packages — Multimate Advantage 3.6, MS Word 3.1 and Displaywriter IV 1.0 — can master these programs more rapidly it is claimed with Wheel Ease guides.

Available from Headway Computer Products of Aldershot, Hants, Wheel Ease is a rotating command reference and replaces bulky manuals, incomplete reference cards and templates, matching the functions with the necessary keystrokes. The user turns the wheel to the desired function and the correct command appears in the window.

Headway tells us Wheel Ease cuts learning time and provides a reference to system fuctions. Its floppy disk size makes it easy to store.

Time management

AVAILABLE in two versions, Taros allows the user to manage time, rescources and information.

From Plan-A-Year of Camberley, Surrey, allows a large number of people, projects and resources to be controlled from a central point. A full year screen offers different levels of information and you can plan up to 10 years ahead.

Taros is available in two versions. Taros Solo is designed for use on a standalone PC, but Taros Multiple Diaries allows managers to view and control the activities of many.

The program interfaces with existing software and, because it uses the 'time' route to access data. Existing programs can be enhanced to provide an 'own diary' facility.

A chip off the ol' pooch

STORIES of the idle rich in California and their pampered pets frequent from a world that envies Californian prosperity. Poodles fed on chopped sirloin, terriers with diamanté waistcoats, owners earnestly paying for analysts to help their canine chums to overcome their emotional problems (like sold-out issues of CCI at the newsagent).

But the latest idea may be really said to take the biscuit. Dog lovers are using microchip devices, inserted under their pet's skin, as a safeguard against loss.

If the pooch strays and turns up in a dog's home a scanner is passed over its body and picks up the bow-wow's reference number from the chip. This is then checked against central records and the animal's personal details are revealed (not too personal, we hope).

The scheme's creators claim that 100 pets a day are being signed up and that the idea could also work for cats or other pets and is also being offered to farmers (for their livestock, not for their bored wives).

Mini Office PC

THE latest addition to the Mini Office software range is Mini Office Personal. Available from Database Software at £29.95, the package is aimed at the first time user of PCs and contains a word processor, database, spreadsheet, label printer and communications software. These five modules link together for maximum productivity. Database tells us the program also features pull down menus and help screens.

The word processor can access the database for mail merge purposes, while the database is said to be capable of searching and sorting data and performing arithmetic calculations. The communications module provides access to such services as Telecom Gold, MicroLink and Prestel and offers file transfer protocols including ASCII, Kermit and Xmodem.

WP for the blind

TECHNOLOGY has helped many disabled people live more complete and independent lives, but helping the blind to communicate by writing has always been a problem area.

Now, word processing for the blind is possible following the development of Soundwriter by Gravatom Technology. The device can be used irrespective of the operator's braille or keyboard skills, Gravaton tells us.

Soundwriter uses an adaption of morse code as the interface between keyboard and operator. Just nine keys of a standard QWERTY keyboard are needed to work the system. These give the basic 'dit' and 'dah' of morse code, along with the word processing features such as word wrap, word search, file handling and editing.

Gravatom says its trials show that morse code can be mastered quickly and that the operator can produce business standard word processed documents within days.

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'STOP PRESS' includes an excellent zoom facility for adding those finishing touches before your work is output to a wide range of Epson compatible dot matrix printers.

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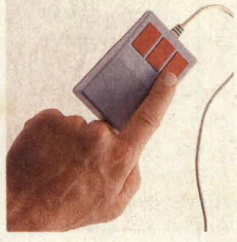
AMX MOUSE

Stop Press can be used with a joystick or keyboard but the AMX Mouse gives you the control and flexibilty which you would expect from the most accurate pointing device available.



Established as the market leader the AMX Mouse has been the driving force behind a whole host of new applications from other software houses. With its unique design and high resolution movement the AMX Mouse is a must.

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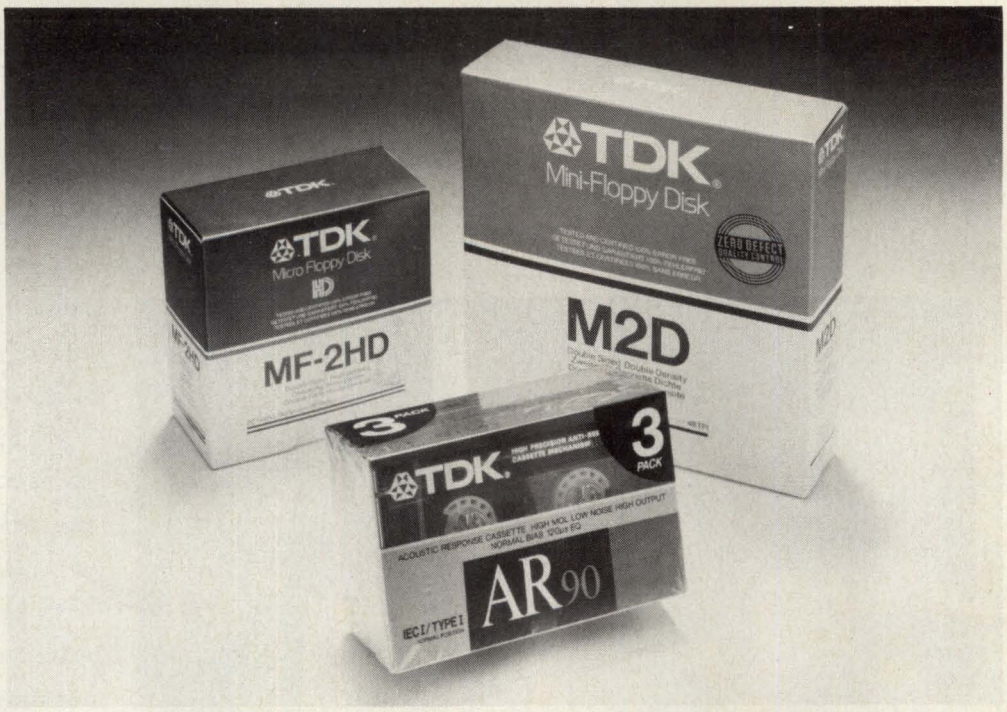
TDK Diskette range now available

The new range of 3.5in and 5.25in diskettes recently launched by TDK, one of the world's leading producers of audio and video cassettes, is now available from Action Computer Supplies. To mark the launch of the new diskettes, a free pack of three SF90 or AR90 TDK audio cassettes will be dispatched by Action with every five-box order for TDK diskettes.

"We are delighted to include yet another world-renowned name in our list of leading brand manufacturers, and to pass on their special launch offer," says Action marketing director Dick Sheppard. Contact: Action, for order information.



External back up for IBM PCs

AN external 150Mbyte ¼in tape subsystem for the IBM PC range, PS/2s and compatible computers has been introduced by Cipher Data Products, from Wokingham, Bucks.

Known as the 5400 Plus, a main feature of the unit is its menu driven colour software, which is user interactive and supported by on line hlep screens.

Users can back up systems on a file by file basis, specific partitions only or entire disks with capabilities for verify and restore. The 5400 Plus uses the GCR encoding method and offers a transfer rate of 4.5Mbyte/min.

The system uses the QIC-02 host adaptor and the QIC-24 recording format. The provision of SYTOS software allows tapes to be interchanged with those from IBM 6157 drives.

According to Cipher, the device supports DOS and Xenix, as well as uch networking systems as Novell, IBM Token Ring and PC Network.

CBM at Which '89

Upcoming Commodore Business Machines is set to make its presence felt at Which Computer? 89. The company is bringing together new products (such as the PC40 Series III and the Amiga 2500) and a discussion forum on its largest ever stand at the show.

The Amiga 2500 is being shown for the first time, it operates through version 1.4 of Workbench, uses the 68020 Central Processing Unit and boasts an enhanced chip–set. The Amiga 2500 is destined to house both the Unix card and the AT–bridgeboard – which will also be on view.

The PC40 Series III machines have just arrived on the UK market and will be at the show for the first time. Commodore is reporting a great deal of attention for these machines from both dealers and corporate buyers.

Commodore Business Machines will also be showcasing some rather special networks for its PC's and Amigas. The stand will include a lecture theatre which will bring all news and views about Commodore's machines sharply into focus.

Transparent interface

TO celebrate the sale of the two millionth Logitech mouse, Logi UK has launched the Clear Mouse.

Completely transparent, it allows the user to see the workings of the device, and it comes with a free poster which describes its anatomy.

The Clear mouse is a special version of the Logitech Serial Mouse and comes with the Plus Package software, 9-to-25 pin adaptor and the Paint-Show program.

Logi UK expects supplies to last only until March. It is offered to first comers only. Price: £99.00

Plotting from printers

PINKPLOT, a utility available from Pink Software of London, allows a dot matrix or a laser printer to emulate a pen plotter. Besides improving the quality of dot matrix output, PinkPlot can be used with such programs as Supercalc 3 and Lotus Symphony which do not directly create HP-GL files. This is achieved using VPLOT, a virtual plotter program.

Drawings are loaded into PinkPlot with a DOS like command. Resolution is the highest which can be supported by the printer.

The package requires an IBM PC or compatible running DOS 2.0 or higher with 512k or RAM. Two floppy drives or one hard and one floppy drives are also needed. Price: £49.00.

Mitsubishi colour printer

MITSUBISHI aims to bring colour printing to a wider market with the introduction of the G330 thermal transfer printer.

The machine offers full colour printing — up to 4096 different shades — and built-in video processing features for £2,980. It is aimed primarily at desktop publishing, presentation graphics, page make-up and picture database applications.

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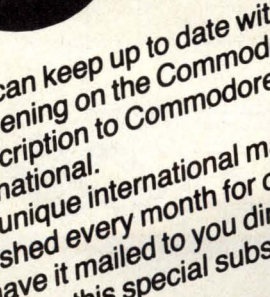

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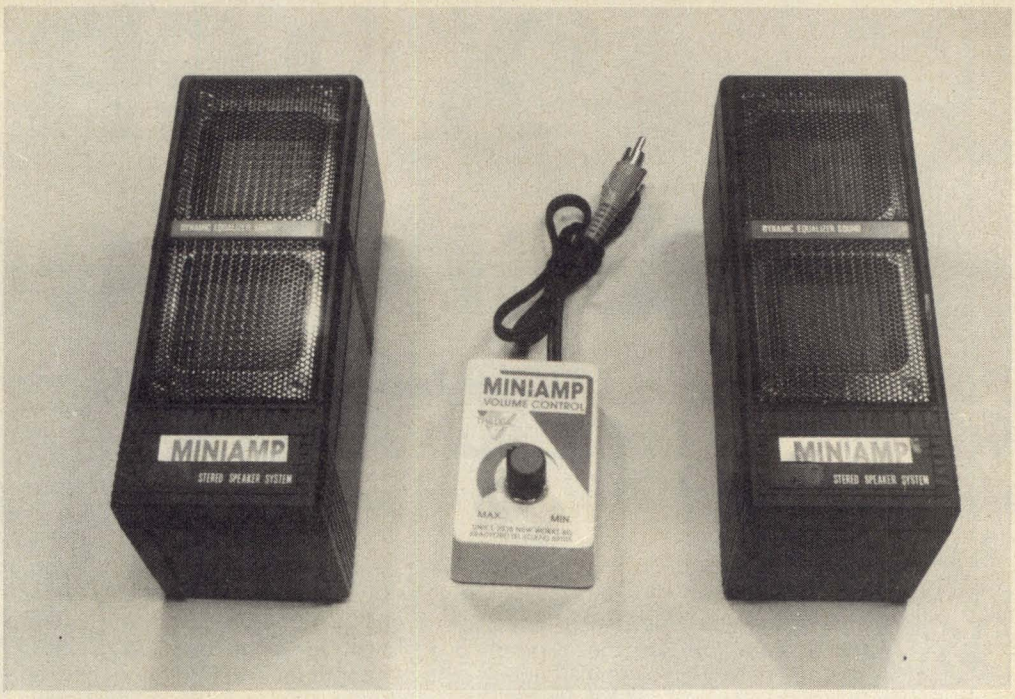

Trilogic says: "If your monitor or TV only has mono sound, then you're not doing your AMIGA's sound capabilities justice." And they say they have an ingenious and cost effective answer – the MINI-AMP 2. The MINIAMP 2 is a mini stereo amplifier with two neat twin cone speaker units which connect directly to the AMIGA. The stereo amplifier is built into one speaker unit which then connects to the other speaker unit. Power is provided from the AMIGA's serial port, though batteries or a mains power unit are alternative power sources.

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Price: £19.99, inc. VAT and postage. Contact: Trilogic Unit 1, 253 New Works Road, Bradford BD12 0QP, Tel. 0274 691115.

Copyist Professional

The Copyist is a professional quality score-editing, transcription, and printing program. According to its creators – Dr. T's Music Software, it has been chosen by over 3,500 musicians, composers, arrangers, copyists, producers and hobbyists as their program of choice to produce publishing quality scores over the past two and a half years on their IBM computer.

This is a full Amiga implementation featuring pull-down menus, scroll bars, and multitasking support. Copyist files can be transcribed from KCS format, standard MIDI files, or SMUS. Scores can also be exported to other sequencer programs via KCS, SMUS, or the standard MIDI file formats. Scores can also be entered and edited directly on the PC using the mouse and a set of mnemonic keystrokes for fast, flexible input. Notes, text, symbols, and lines can all be placed wherever you desire in a page and can be separately moved or deleted.

Copyist includes a full complement of musical symbols; Treble, Bass, Alto, Tenor, Soprano, and Percussion clefs; guitar chord grids (sizable for guitar or up to 9 strings/9 frets); and 16 stave capability including orchestral percussion. Beams can be slanted or horizontal; smooth slurs, ties, dynamics, and beams (even on dot-matrix) are supported; and there is 4-point adjustment of slur curvature, direction, and height. Individual parts may be created and transposed automatically from the score.

All key and time signatures are supported and note placement is anywhere you desire. You can place, move, and edit text anywhere on the page and access up to 6 different styles of text per page (dependent on printer). You can also insert and delete notes, rests, symbols, text, bars, and pages. When transcribing from a sequencer, options include setting the key signature, bars per line, stave per page, time signature, clefs, and optional stem direction. Quantization of timing and duration as well as other parameters can be set for each track separately, and 4 sections of individual tracks by measure. It is also possible to map any track to any stave or to split a staff into a granstaff. The Copyist comes with an extensive manual containing easy to follow tutorials, and a comprehensive index. Dr. T's offers telephone technical support to registered owners and publishes a quarterly newsletter including advance applications of the program.

The program supports Epson FX, LX and HP Inkjet compatible dot-matrix printers and prints in draft or quad-density quality mode. Other printer support includes HP Laserjet Plus or HP Laserjet Series II, and HP Deskjet. Additional printers are supported through the standard Amiga Workbench utilities.

The Copyist requires an Amiga 500, 1000, or 2000 computer with Workbench 1.3, which is included with the program. A hard disk is recommended but not necessary. Price: $275. Contact: Dr. T's Music Software, 220 Boylston Street, Suite 206, Chestnut Hill, MA 02167, Tel. 617-244-6954.

Computing Dictionary

COLLINS has just published a very useful dictionary of computing aimed at people who use micros for education, business or pleasure, rather than data processing specialists. Reports say the explanations tend to be long and clear, which makes the book readable. One serious omission seems to be the letters CCI . . .

Computer Art Forms

THE Conquest of Form is an exhibition of computer art by William Latham, a visiting fellow at IBM's Winchester Scientific Centre. The exhibition, which opened in Bristol before Christmas, will travel in the U.K. during 1989.

According to Latham, he is trying to create sculptures which could not exist in the real world. "Many of my sculptures," he said, "float in space and are so intricate they would be impossible to make."

Apart from Cibachrome prints of his work, the public will be able to use interactive computer displays to find out about computer sculpture images.

'XPER Xamined'

Peter McDonald 'Xamines' a French 'Knowledge Base' that comes from the U.S. and will turn you into an 'Xper'

XPER Knowledge Base Software is another database for the C64, or C128 in 64 mode. Why the odd name? I can only guess. It was written by Dr Jacques and copyright is claimed by Micro Application of 13 Rue Saint Cecile in Paris. The French pronounce 'Expert' with the 't' silent. Perhaps this explains 'EXPER'. Anyway, it is now marketed in the USA by *Abacus Software* of Grand Rapids.

It is not *just* another database. Nevertheless, a database it is. And therefore to justify its existence in this field it has to face certain facts of life. These are:

1. ***As with word-processors, so with databases: the one with which you are most familiar always seems the best.***
2. ***SUPERBASE is the database with which most C64 owners are familiar.***
3. ***A database is a waste of time and money if you could get the same results from a simple card-index, which is easier to transport and keep up to date.***

Take the last point first. Where a database should *always* score is in the detailed sort. Imagine a vicar trying to keep records of his parishioners. He chooses a card index system. He decides that the best method is to arrange them alphabetically by surname because then he can find quickly the card relating to a named person. Then he has to decide how he wishes to be able to 'sort' them. To do that, he has to visualise the categories he may need to identify.....men and women; children (important, especially if he has a church school to supervise; he must know the likely intake for each year); special skills (is there an architect who might at least look at the flying buttress and say if it is airworthy?); special needs (a family with a handicapped child, or elderly parents?). And so on. It will soon dawn on a conscientious vicar that there are limits to what can be achieved using (say) different coloured cards and flags.

I have mentioned the vicar because he typifies a possible market for home computer database: that is to say, people who, though not in business, nevertheless have a need to store, sort and retrieve information. The secretary of a sports club, or the producer of a local newsheet, or perhaps a local councillor could easily have the same needs. A good database would help them all...provided, of course, that they install it sensibly. This is not always as easy as it sounds. You need a very clear idea, from the outset, of the kind of data you are likely to need. How many of us have set off brightly, made what seemed like a suitable template, and spent hours typing out information, only to find that we should have included another field or two, and there is no way of altering the existing fields, or feeding our data into a new file?

Let me say at once that *EXPER* soars way beyond the capabilities of a card-index system. Indeed, it is so professional in its approach that it would be of immense use to anyone whose job is , in the broad sense, scientific. It is no coincidence, one feels, that the specimen database, used for the lessons in *EXPER*'s manual, deals with various members of the cat family and includes a lot of information about them which was news.....at least ti this writer.

How does it compare with SUPERBASE? Superficially, they are not alike. If you use SUPERBASE regularly, you will not find that XPER feels familiar. Let me explain. To create a file in SUPERBASE, you first of all design a 'form' with various headings in it (e.g. author's surname; author's first names; title; publisher; price; shelf; category.) You decide how many characters to allow for the answers. Then you store the blank form in memory. Every time you want to make a new entry, a blank version of your form appears on screen and you 'type in' your answers after each heading. When you want to do a sort (there are several methods, for SUPERBASE is a sophisticated program) you can call a blank copy of your form to the screen and put it against the headings the words you want it to match. Thus if you wanted to find out how many books of essays you had by G.K. Chesterton, you would fill in 'Chesterton'; 'Gilbert Keith' and then, under category, 'essays', leaving the other fields blank. The program would find for you every 'page' where the details matched those you had listed.

In fact XPER would achieve the same result. The route seems dissimilar, but if you ask it which members of the feline species, do not climb trees, and live in America, it will find their names, amongst those you have entered. Its approach seems more disciplined because it obliges you to choose from pre-selected alternatives when describing the various 'objects' in your file. This facilitates analysis. Some databases would allow you to describe a loin's fur as 'tawny', instead of 'spotless' which is the appropriate item in the list presented to you by XPER. Such freedom would make it difficult to produce an analysis because you might use different words to describe two attributes which (in the context) are identical. But of course the more flexible databases could be operated in a more disciplined way.

Apart from your computer, screen, and disk-drive, all you need is the program disk, manual, and a blank disk to take your data. If, of course, you want to make use of the program's printing features, you will also need a compatible printer. However, there are no dongles or similar extraneous copy protection devices.

The manual is excellent. In a stiff, plastic-backed binder, its pages are loose-leafed so that it is easy to keep

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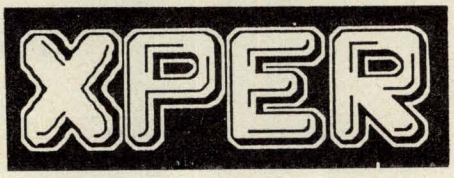
the manual open and flat on the desk. Often one is advised never to try anything out until one has read the manual. As I was not able to get to my computer for some hours after EXPER arrived, I decided to follow this good advice. But my good resolution flagged. It is difficult to absorb the text when it is splattered with items like "Type g1 091;g20096"; "cs17 [RETURN] F1 to display the child features of feature 17". But it is well worth reading the introductory chapter (up to the point where the program is to be loaded) to obtain an overview. In fact, once the program *is* loaded, then the manual becomes much more intelligible, and one even begins to grasp that the mysterious letters are often the initials of word or phrases which describe what is happening.

My only *faux pas* in the Tutorials was to try to save data to the program disk (which didn't get me very far as it has no notch in the side!). The manual does say (p. P-3) that one has to insert the Base (i.e. data) disk before loading or saving, but there is no reminder about switching disks when you do your first 'save' in the Tutorial.

XPER has four main modules. Three of them are what you would expect...an editor; an inquirer (which does the searching and sorting), and the printing module. In addition there is a 'reorganizer' which enables you to restructure existing knowledge bases (this phrase is preferred, in the manual, to database.)

Let us look, briefly, at the first Tutorial. It was a relief to get away from the usual name and address examples given in database manuals. Here we had to list six members of the (big) cat species, together with a series of headings which are called 'features' and are like those used as field-headings in SUPERBASE (1. Fur appearance; 2.Weight; 3. Tree Climbing; 4. Main Hunt Method.) But in XPER, each feature has at least two possible attributes. For instance, No.1 (Fur appearance) offers the following selections: 1. Spotless; 2. With spots; 3. Striped; 4. Mottled. Weight (feature No,2), however, is subdivided into: 1. Less than 80 kilos and 2. more than 80 kilos. When all the data is entered (and in the course of doing the exercise you add the area where they are found) you can ask the program to tell you which felines from Europe or Asia hunt on the run. It will also tell you which felines it has eliminated from the search, and why.

For the second demonstration the program uses a 'knowledge base' already on the disk, so there is no need for hours of typing. The main aim is to demonstrate the Inquiry section in more detail. During the lessons one is shown a little more of the things which can be done...grouping within the program; 'parent-child' features (if the parent is unknown, the children are ignored), the 'distance of Jacquard'. The 'distance' is based in the number of points which divide the objects. Thus, identical objects would have a 'distance' of zero; differences are multiplied by 10,000 to simplify display. Objects are considered close when their distance is under 2,000. In terms of distance from the Lion, the Tiger is nearest with a score of 3478, the Leopard next with 4800, the Jaguar next with 5384, and so on.



Applying the Jacquard equation underlines the fact that though references are made to artificial intelligence in the manual. and EXPER is contrasted with 'conventional data base Systems', the old GIGO maxim applies: if you put Garbage In, then you'll get Garbage Out. The 'distances' which the Jacquard formula calculates are based on a set of features chosen arbitrarily by the person setting up the data. Not only must the data recorded be accurate: it must be meaningful as well. If, for instance, the number of letters in their names were counted, then the puma and the lion would *on that test* be nearer each other than lion and tiger, but it would mean nothing scientifically. I have, of course, chosen a ridiculous example. But you have to be something of an expert to know what features to incorporate in your XPER program if you are going to trap all the relevant data, as well as avoiding the irrelevant.

Again, you have to be logical in order to draw the correct conclusions and nothing more than the correct conculsions . On p.T-67 in the manual there is a good example. The program demonstrates that all felines which climb trees have retractable claws. But, adds a note: "The reverse of this rule does NOT hold true. 'All felines with retractable claws can climb trees' is a false statement."

My overall impression is that this program is intended for the professional. I do not mean that you need to be a professional to use it.....it is no more difficult to learn than any other database, and the manual if first-rate. But I do mean that it will only come into its own if it is storing, sorting, manipulating, and analysing, information fed into it by someone who has an expert's appreciation of what is relevant in his chosen field, and what sort of 'scanning' he will want the program to do for him. My guess is that whilst this is the sort of program one would enjoy possessing, (and illustrates graphically how the humble C64 is so much more than a games machine) the average micro owner will not be able to exploit XPER to the full. On p. 0-2, the manual suggests that Computer Assisted Identification (which is the term it applies to XPER) has 'many applications in scientific fields and research (biology, zoology, chemistry, geology, etc). Knowledge base systems are useful,' it adds, 'for solving diagnosis problems (mechanics, medical....), decision-support aid, and hypothesis evaluation. Home computer users can ask XPER to help them predict tomorrow's weather, help their children's education, handle complex personal files, solve logical puzzles, and so on.'

Well yes. It might also have more light-hearted uses.....e.g. forecasting football results, or race winners. The point is that it is ideal for recognising differences and similarities. But you need access to the data before you can enter it, and then you have to decide upon the features whose attributes could prove to be significant.

The Reorganization section has most (perhaps all) of the factors you would wish. You can, for instance, rearrange objects (e.g. into alphabetical order) or merge two files.

The printing module offers facilities like screen or printer editing: output device modification (e.g. from device number 4 to 7); printer with modification. It will print out lists of features, attributes, objects, object description and 'frame'. The latter is a chart showing the numbers of the objects across the top and of features down the side. The features sections contain a different line for each attribute; crosses on the appropriate line reveal the attribute for each object. Thus, object 1 in the 'cats' file is 'lion'; feature 1 is 'fur appearance', and the possible attributes within that feature are 1. spotless; 2. with spots; 3. striped; 4. mottled. So you would expect the crosses to appear on the line 1 of the attributes under feature 1; and you would be right.

This module worked satisfactorily for me on a STAR LC-10C printer , with all the DIP switches up.

There is, of course, much more to XPER than one can cover in a review. Some of its facilities, I am sure, will only become obvious when one has used it consistently over a few months.

Verdict? A well-designed program, best-suited to the serious user.

PM

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Online Database market to grow past $11 billion

A new report, "Online Database Markets", has just been released by Market Intelligence Research Company of Mountain View, CA. The report finds that this market, which was only slightly over $1.3 billion (£800 million) in 1984, more than doubled in size to reach over $2.6 billion (£1.6 billion) in 1987. Outstanding growth will continue with annual growth rates exceeding 20 per cent, and market revenues are projected to reach over $11.7 billion (£6.5 billion) in 1994.

The number of subscribers is expected to show similar growth, from around 283,000 in 1984, to nearly 540,000 in 1987, to over 2.1 billion in 1994. The report is based on extensive telephone interviews with marketing and technical experts from selected companies in each market segment. This information was backed up by thorough study of all secondary sources available. Price: $1295. Contact: MIRC Europe, 55 rue Vandenhoven 1200 Brussels, Belgium, Tel: 32(2)762.2781.

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Falcon is coming for the Amiga

Falcon, the award-winning F-16 flight simulation program will shortly be available for the Amiga. Falcon has been awarded three SPA awards (US Software Publishing Association 'Oscars'). Falcon was voted Best Action Strategy Program, Best Technical Achievement and Best Simulation Program.

The Amiga version of Falcon features improved ground scenery and the addition of moving ground targets. The screen display gives the effect of actually sitting in the pilot's seat facing the controls and head up display, Mirrorsoft proclaims.

Dog fight scenarios allow the player to go head to head against up to three enemy MiGs at a time. In keeping with the characteristics of the real life F16-A, Falcon can perform manoeuvres impossible to achieve in any other aircraft.

Twelve air to ground missions are included in the program. A map of the Falcon universe shows the location of individual SAM sites, bridges, airfields and other landmarks, the pilot must complete his mission using whatever weapons are appropriate to the task-missiles, bombs or machine guns.

Falcon has afforded Mac and PC owners a glimpse of what it must be like to pilot an F-16, now Amiga users can experience for themselves the thrill and experience that is Falcon. Price: £29.99. Contact: Mirrorsoft, Headway House, 66-73 Shoe Lane, London EC4P 4AB.

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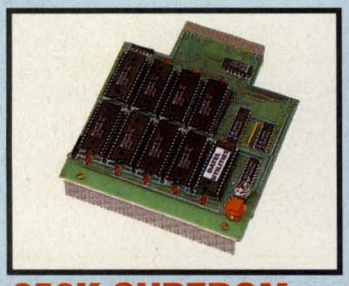

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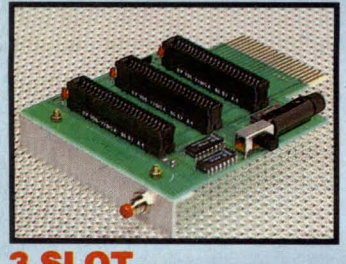

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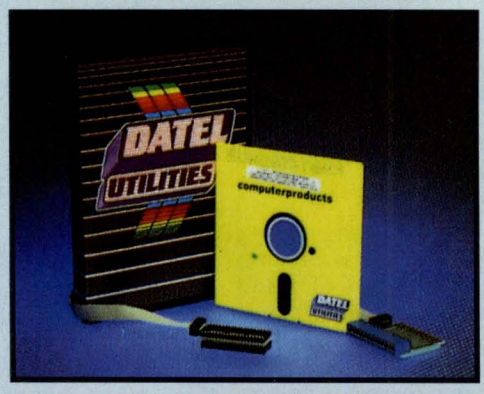

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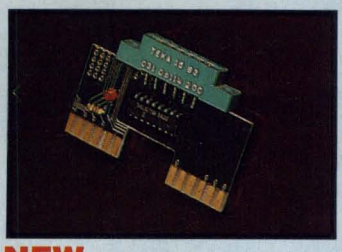

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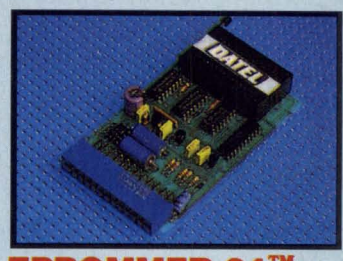

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Feature

'PUBLIC DOMAIN 128'

There are reputedly over 1 million 128 owners worldwide. They have, however, good reason to feel neglected by software writers. Peter McDonald looks at two PD disks that help make up for it.

KINGSWAY Computer Service (140 Rushdale Road, Sheffield, S8 9QE; tel: 0742-588429) now have C128 disks in stock. Listed in their supplementary catalogue are a dozen in that mode. I bought six but it would take too long to review them all. I therefore take a detailed look at only two of them (those numbered 128-1 and 128-2). The standartd is remarkably consistent. Since there is a limit to the variety of useful programs one can write, the contents of the various disks are not too dissimilar. The two I chose for review are representative.

To select the disks rationally, you must study the catalogue carefully. The lists it gives are not tables of the programs but copies of the disk directories For instance, in the case of 128-1, 43 items are listed. But 26 of these comprise sub-sections of one program. That is exceptional and stands out because all except one of these items begins with the letters 'CAT', and the remaining one is called 'ULTRACAT V2.0-80'. Each disk (including V.A.T., postage and packing) costs only £2.99 (according to the inside of the catalogue) or £2.95 (according to the cover!) so you wouldn't really expect each disk to contain over 40 separate programs, now, would you?

What about "ULTRACAT"? Is it worth all the space it occupies? Like many P.D. programs it is, when all has been said and done, just another database. Here, the data comprises the directories of the disks in your collection. When you have fed all the data into it, what do you have? A list, disk by disk, of each directory, but divided, for ease of search, into (up to) 10 categories. Could you have utilities in Category 1, games in Category 2, and so on? Well, you could. But it would not be easy unless you kept them on separate disks, i.e. no utilities or databases on the same disk as games. Few of us are as systematic as all that. But I copied ULTRACAT and its 25 separate sub-programs to a clean disk and then used Category 1 for the Kingsway Disks, Category 2 for my COMPUTE! GAZETTE disks, and so on. This works tolerably well because I can usually remember which brand of commercial disk carries the program I want.

The search facility? Fairly rigid: you have to know the complete name of the file in order to find it. But first, having loaded the Category, you have to get it to SORT. If you ask it to do this according to files, it does so (very quickly)... figures before letters; initial letters in alphabetical order. You can then either SEARCH or simply VIEW. VIEW shows you (in a series of pages) all the file names arranged as just described. It is easy, therefore, to spot the item you want, provided you know its first letter or digit. Alongside each entry its disk is named so you know where to find it.

ULTRACAT is quite user-friendly, with generous HELP texts. To load the directory of a disk is simple: you obey the command to insert it, press RETURN, and the directory is listed on screen; you are then asked if you require to add the contents of another disk. When you want to save all the information you have amassed, you simply follow the instructions for QUIT. This automatically saves to disk the Category in memory. When you want to use the program again, you make the command OPEN, and answer the prompt by typing in the number of the Category.

"ULTRACAT is a useful program and contains some unexpected facilities (e.g. a sub-program for changing the colour of the screen background, and text)."

ULTRACAT is a useful program and contains some unexpected facilities (e.g. a sub-program for changing the colour of the screen background, and text) I have described it in detail because it shows the professional quality of the better programs on public domain disks.

May I digress for a moment? I have a 1571 drive as device 8, and a 1581 as device 9. This arrangement recognises that most 64/128 software is on 5.25 ins rather than 3.5 ins disks. But because of its much greater storage (more than twice that of the 1571) the 1581 suits programs which require data to be added and saved. Many basic programs can be loaded from device 8, saved on device 9, and used from device 9 thereafter. But things become complicated if (like ULTRACAT) the program interacts with other sub-programs. For instance, even if you copied all the 26 ULTRACAT items to the 1581 drive, and then gave the command RUN "ULTRACAT V2.0-80" ON U9, the program would soon be trying to address drive 8, because it was written to operate with drive 8.

This can be overcome, with a basic

cont. on next page

continued from page 29

'PUBLIC DOMAIN 128'

program, if you scroll through the LISTING, watching for the tell-tale ",8,". If this is changed to ",9," then in most cases all will be well. Of course it is tedious scanning a long LISTING. So for basic programs I use a search facility in a professional utilities program. This prints on the screen the actual lines (not merely the line numbers) containing the string you seek. You can alter it wherever it occurs and then SAVE AND REPLACE the amende program (to device 9). But ULTRACAT, and quite a few other items, are not written in BASIC so amending those was beyond my ability.

To facilitate loading, Kingsway have included "MENU 128" on each disk. This, I think, is intended to BOOT automatically. It cleverly lists just the names of actual programs (thus ULTRACAT, but not its 25 sub-programs, appears on it). In theory, you can RUN any of the programs from the MENU. But in practice, it is more selective. If the program you chose is not in BASIC a notice appears on screen saying so. Then you have to RUN it without the help of the MENU.

"Part of the trouble may have been that the items are packed into one side of a disk (to cater for 1541 owners) and this leaves little room spare."

The MENU would not always BOOT for me. Sometimes I got the desired result by pressing the SHIFTED RUN-STOP key. But, very often the Kingsway disks did not respond to the F3 key, or the command CATALOG. Sometimes, I had to jiggle the disk in the drive before it began to operate. (The drive is practically brand-new, has the new wonder ROM fitted, and has given no trouble before). However, I managed to copy the programs to disks of a make I knew worked smoothly with my drive, and all is now well. Part of the trouble may have been that the items are packed into one side of a disk (to cater for 1541 owners) and this leaves little room spare. But the two-sided (1571) format leaves enough spare room on the disk for trying out those programs which involve saving data; you can save it without having to change disks.)

If you get three useful programs from one of these disks, then you have not frittered away your £2.95. So what else does disk 128-1 offer? A CP/M translator; a file copier for the 1571; '1571 resurrect'; 'disk zap 1571-80'; 'memo file2-40/80'; 'burst 71 sys4864'; 'pers.checking-80'; 'cardshop library'; 'memo file2-40/80' and 'unicopy (ram) v1'.

"It claims to provide the only easy way to make a file from a reverse disk accessible to a 1541. W.H. Moore is the genius who gave it to the world."

'1571 resurrect' aims to restore files, and even disks, which are subject to (soft but not hard) read errors. This worked well for me on the one disk I could find with a read error on it! 'File copier 1571' is in fact a C64 program. It copies files from or to a disk in 128, normal 64, or reverse 64 format. It claims to provide the only easy way to make a file from a reverse disk accessible to a 1541. W.H. Moore is the genius who gave it to the world.

Perhaps the oddest program is 'cardshop library'. With it, you can print a primitive 'get well' or 'thank you' card. No restrictions on length of 'message' were mentioned. But if I exceeded three short words (e.g. 'I do hope') on a line, the print strayed outside the border. Most frustrating was 'pers. checking-80'. This was obviously intended to provide a record of a bank account. It asked for the account number to be entered and then ordered: 'Identify yourself'. I typed 'Peter' and the program hung-up on me. Had I entered another name when first trying out the disk? I tried every possible combination of my own name and initials but could get no further. Moral: do not test this program with fictitious data or you may unwittingly bring down a security curtain.

To those who like exploring, and tinkering with, disk sectors, 'disk zap 1571-80' might appeal. It enables you to read sectors, write sectors to disk, and read the directory.

When Jim Butterfield (for it is he) wrote 'unicopy (ram) v1', he intended it for the fully computer literate. No instructions are offered. I am sure it must be excellent!

The 'memo filer' is by Clint Wax. Having loaded the program you can then enter a memo or retrieve a previously recorded one. Retrieval is by key-word. You can print to screen or printer. Useful for someone wishing to take notes without using a word-processor. But most efficient word-processors could achieve even better results.

An interesting collection, well worth what is asked.

Disk 128-2 carries a larger number of items... partly because there is no program on it which occupies as much space as ULTRACAT & Co on Disk 128-1. LOTUS 123 sounds fascinating, but isn't all that you might think from the title. Not for those without a sense of humour. There is (yet another!) address-book database... not too good because you need to know the entry number before you can call it to the screen for viewing (yes; you can view the lot in succession). An item called 'all notes' would not work for me. 'Abort. calc' is one of those interesting programs where you state the capital available and are presented with tables showing how much would be payable over various periods, at various assumed rates of interest, before your capital is exhausted. The 'c128 filer' was quite versatile. My notes say you can write, save and review text file, and add, delete, see the directory, check disk errors, and format a disk: useful, and quite fun to operate.

"When Jim Butterfield (for it is he) wrote 'unicopy (ram) v1, he intended it for the fully computer literate."

I played happily with 'chart v2.0'. You insert up to 20 values, and say if you want the average and total. You can choose to have them displayed as a pie-chart, or as a line graph, or as blocks. The desired diagram is produced for you swiftly and attractively.

Mike Dissinger's 'data file' on this disk is good value. You can create new files, delete, read old files, write to disk, add, modify, print-out and sort. Quite a professional effort.

Another database for disk directories is 'disk filer'. This carries out the usual functions....writing, reading, viewing; cleaning disks; scratching files; formatting disks.

Another one concentrating on disks was 'disk master'. My note simple says: 'It mastered me!' May you have better luck. Still concerned with disks is 'disk lable' (sic). This reads your disk directory and then prints it on a label. It is a little slow and I began to think it had hung-up on me. But it did eventually print the directory correctly. (It prints small, on a long label, so experiment on ordinary paper first.)

My Oscar for oddity on this disk would go to 'envelope maker'. This

continued on page 32

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continued from page 30

'PUBLIC DOMAIN 128'

prints the rough outline of an opened-out envelope, with your chosen addressee's name and address on it, and an advertisement for 'Game Board'. Invaluable for those unfamiliar with the postal system, it indicates in print where the stamp has to go!

A major item on this disk is 'hamlog 128'. Intended for radio hams, it takes nearly 5 minutes to install as it formats a new diskette and saves 'hamlog' on it, and sets up the data-files. Not being that sort of a ham, I cannot say how useful this log would be; it looks very impressive.

An item called 'house inventory' would help all whose possessions have to be insured. You can feed all the usual data into it....brand, model, year of manufacture, value, etc. With a separate file for each room, you could save the loss assessors some work, next time you go to the Commodore Show and the thieves strip your home. (But keep a back-up at your bank in case the villians take your disks, too.)

Rather like a Poor Man's 'hamlog' but occupying little more than 25% of the space is 'kt0h log vl. 2—80'. I lost the thread when it began to refer to zulu time.

Other items on this disk (the names tell almost all) were called 'Calculator'; 'Checkbook'; 'Label Maker'; 'Letter Writer'; 'Library 128'; 'Loan Amortiz'; 'Mail List'; 'Memo File'; 'Movie log'; 'Paper Base'; 'Quick Data Maker' and 'Quick file —80'. As you can see, good value for money, and a collection which should give you many happy hours, trying out what is on offer, and peeping at the listings to see what you can learn.

What, for me, was the plum? Undoubtedly 'Quick file —80'. Yet when I tried to RUN it, there was no indication of the method for loading data. In the end I listed the program and solved the problem. It consisted of only 19 lines....the last being 10000, and the penultimate one reading:

180 REM INSERT YOUR DATA STATEMENTS BETWEEN HERE AND 10000

This looked rather like a 6 or 7 line database, called INSTANT RECALL, by Rick Lockett, which I found in an American magazine some years ago and have used consistently. So I tried adding a few lines beginning with the word DATA. Then I ran it and, in answer to the prompt, asked for a word I had included in a DATA line. Immediately the line containing that word came on screen. This was an improvement over INSTANT RECALL (not the professional program with the same name, by the way!). That program, written for the C64, would only search for and find the 'string' which followed immediately after the word DATA. So if you wanted (say) an item reading:

CHESTERTON G K—BIOGRAPHY BY FFINCH

you could only find it under CHESTERTON. If you wanted it to respond to FFINCH, too, you would have to add another line:

FFINCH—BIOGRAPHY OF G K CHESTERTON

Now INSTANT RECALL (like 'Quick file') is held in memory so your data has to go into less than 1000 lines. To use two lines (in extreme cases, three) to cover one item is profligate. 'Quick file' avoids this by finding every line containing the chosen word, whatever its position in the line. This (and the fancy coloured 'window' and script on screeen) quite won me. I am now converting INSTANT RECALL to this new format. That program alone was worth much more that £3 to me!

So invest a few pounds on Kingsway disks. You will get far more than your money's worth.

P.M.

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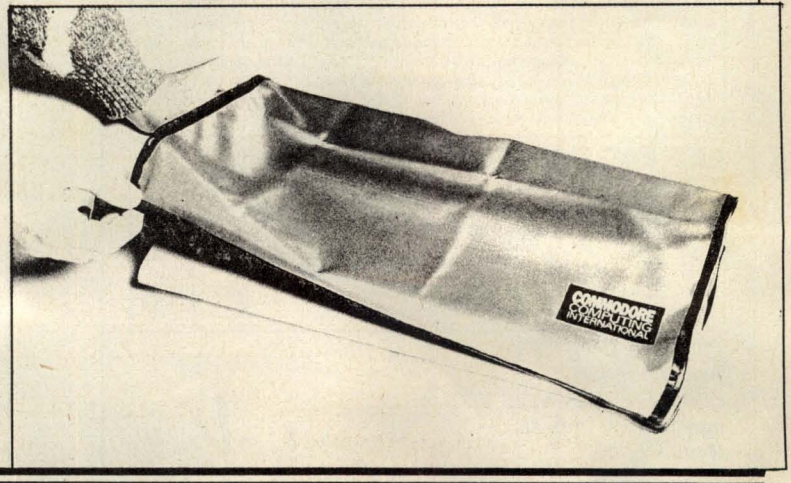

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EXPAND YOUR GAMES PLAYING MEMORY!

Dragon's Lair Competition

READYSOFT, the up-and-coming U.S. software company have set new standards for home computer games with their amazing new Dragon's Lair on the Amiga. Brilliant though it may be and you had better read the hard-top — please Tony Horgan almost rave in this issue in his review of this six disk game –Dragon's Lair has one big problem. It is just too damned big. Yes, it has got so much stuff crowded into it, especially the stupendous graphics (undoubtedly the best yet on any home computer) — that in spite of the six disks, it will only run properly on an Amiga with sufficient memory, an A2000, A1000 or here come the kicker an expanded A500. If you have one, okay, if not you are going to have to sit with your mouth-watering while the lucky exanded ones get their hose torn off by the Dragon. (You do know that hose was something they wrote in the middle ages, didn't you?)

That is unless you enter this Dragon's Lair Comp. of course. Because Entertainment International, who distribute Dragon's Lair in Europe have given us two terrific ½ Meg expansions for the A500 for Comp Prizes plus a copy of Dragon's Lair for each of the two lucky winners.

So if you would like to expand your gamesplaying memory all you have to do is answer the following questions:

1. *Which saint supposedly slew a dragon?*
2. *Name two other horizontally scrolling shoot 'em ups from Hewson.*
3. *Name any member of the heavy metal band Slayer.*
4. *Name one of the extra weapons available to Slayers. (No not the band!)*
5. *Name Hewson's "revolutionary" platform game written by Jon Phillips.*

First all correct entries drawn by the fair hands of Comp lady Teresa get the prizes.

Answers on a postcard please by April 15th, 1989 to
Dragon's Lair Competition
C/O CCI, 40 Bowling Green Lane, London EC1R 0NE
P.S. There is another Dragons Lair Comp in the next Amiga User International Magazine. Same prizes but different comp! So if you want another try . . .

The standard of animation programs for the Amiga has grown steadily, both in terms of results and complexity. It seemed that the only way to pack more power into a piece of software was at the expense of ease of use; friendliness took second place to features, and as results got better, the pain of achieving them rose proportionally.

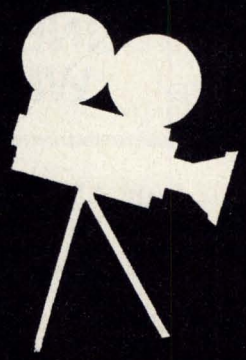
Movie

MovieSetter, a new mid-price entry into the market from Gold Disk has broken the trend and introduced a full-feature push-button animation package. Its simplicity and ingenuity look set to establish it as a classic, easy to use entry point into this rewarding field. All control is through the mouse, or via keyboard shortcuts, and in true WYSIWYG style, what you see on screen is exactly what you will get on playback. You can actually animate on screen, which is a great help towards cutting out time-wasting edits; it also

lets you compose on the fly by displaying each frame the instant you make any amendments to it.

The program works in PAL mode, and can display full 32 colour IFF images on screen. It is split into three distinct tools : MoviePlayer, SceneEditor and SetEditor. MovieSetter is an integrated tool which contains this trio of utilities.

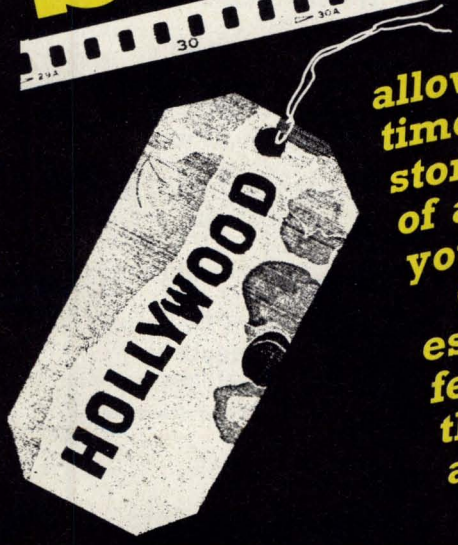
For as post-production, the program is just as flexible and easy to use,



Setter

allowing comprehensive editing at any time. Helping the process along is the storyboard, a short of visual database of all the events which go to make up your animation.

Gold Disk's reputation is already established through the excellent Professional Rage and ComicSetter. With this MovieSetter they have produced another winner.



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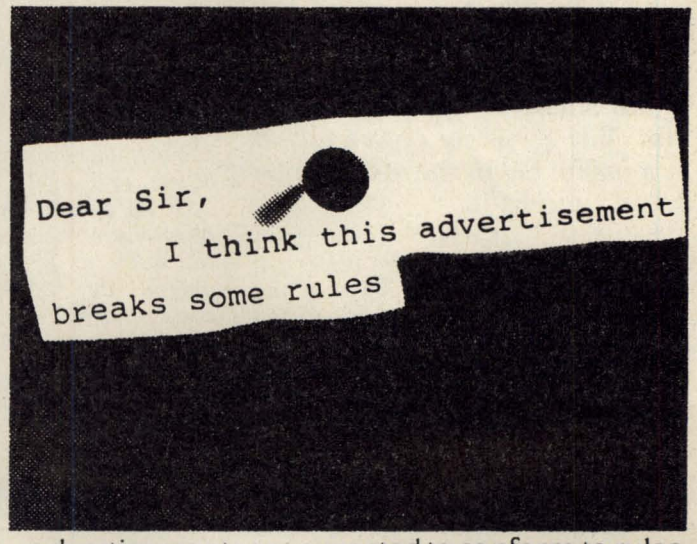

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Feature

'BECOME A HACK-PACKMAN'

In the second of our series 'Golden Oldies' Peter McDonald looks at another classic of CBM software

One 'Golden Oldie' still advertised, but rarely described, is HACK-PACK. CALCO Software have been offering it recently for £19.95. Written for the C128 it is described as the 'Ultimate Utility Package'. 'Ultimate?' Is there such a thing? Perhaps not; but certainly I have found it a useful aid in the years since I first bought it.

What about back-ups? First the good news. I had no difficulty in making a back-up copy. The bad news is the protection device. This consists of a sheet of paper containing over 1,000 tiny squares, arranged in rows with figures down the vertical edges and letters along the horizontal edge. Each square contains a coloured dot....red, green, yellow or white, the colours occurring haphazardly.

When you boot up, you are faced with identifying a square (e.g. M-3) randomly selected by the computer, and noting the colour. You then type the initial letter of the colour. This is repeated twice more. If you answer correctly you are accepted as a legitimate user of the system. Since the back-up disks work when using the same collection of squares, I assume that if you gave a back-up disk to someone else, together with a colour photocopy of the sheet, he, too, would be able to use the program. But that, of course, would put everyone to a lot of trouble, which is what the writers of the program (quite properly) intended.

Once you have satisfactorily identified yourself as a legitimate user, the program presents you with four options on screen. The first is TOOLKIT. This adds eight useful commands to the 128's Basic. These are:FIND; CHANGE; DUMP; INFO; MERGE; TYPE; SIZE; QUIT.

The last is hardly a world-beater. But after quitting the program, you can always reactivate it by typing SYS 65369.

DUMP causes the names and values of all variables and the names of all functions in a program to be displayed. By adding A or V to the command you can limit the display to arrays of variables.

"This consisted of a few lines of programming, followed by hundreds of lines of data, and concluding with a few more lines of programming."

INFO gives information about memory usage, the display showing the number of bytes occupied by BASIC text, simple variables, arrays, etc. TYPE displays ASCII files. Any file containing printable characters can be 'typed'. SIZE tells you the size of a file in bytes.

All these have their uses. But the three commands I have used most are MERGE, FIND and CHANGE.

Here are some practical examples of their utility. For a couple of years I kept an index on a very simple database written for the C64. This consisted of a few lines of programming, followed by hundreds of lines of data, and concluding with a few more lines of programming. Later I came across a much more efficient program for the C128. This, too, was divided into three parts, with the data in the middle. Obviously I did not want to copy out hundreds of lines of data. So I used the C128 DELETE command to remove the lines, at the beginning and the end, which contained no data. Then I used RENUMBER to start the data lines at 200. I saved that as "B". Then I RENUMBERED the first part of the (new) programming section to make sure that it ended at a LINE number less than 200. This I saved as "A". Finally, I RENUMBERED the second part of the programming, so that the number of its first line was higher than the number of the last line in "B" (the data section). This final section I saved as "C".

With TOOLKIT installed, the job could not have been easier. The sequence on the screen read:

1. ***DLOAD "A"***
2. ***READY***
3. ***MERGE "B"***
4. ***MERGING B***
5. ***READY***
6. ***MERGE "C"***
7. ***MERGING C***
8. ***READY***

(I, of course, had to type items 1, 3, and 6.). After stage 8 I typed LIST, and

watched, just to make sure that the three parts had now merged (as they had) into one complete program. It merely remained for me to SAVE it under its new name (in case anything went wrong whilst it was running), and then to RUN it, to prove to myself that it really had done all that was claimed for it. I have used MERGE quite often. It makes it possible to use a favourite chunk of one program in another, without having to re-copy it. This has saved hours of work.

The other two favourites can really be taken together. Let us say that you want to convert a 128 program into 64 format. You may have a rough idea of the sort of 128-only commands you have used (e.g.SLEEP). Having loaded TOOLKIT (which then remains quietly in an area at the top of RAM in bank O) you load your 128 program. Then you simply type:

FIND/SLEEP

and press RETURN. Every line containing the word SLEEP will be displayed on screen with its line number. You can then remove it, from wherever it occurs.

"Since programmers assume that you will be using device 8 as the disk drive, one of your tasks, in adapting the program, will be to alter 8 to 9."

Or take another example. Imagine that, like me, you have acquired a 1581 disk drive and are using it as device 9. You want to be able to use a 128 program on that drive. Since programmers assume that you will be using device 8 as the disk drive, one of your tasks, in adapting the programe, will be to alter 8 to 9. But, of course, not every reference to 8 in a program will refer to a device number. On the other hand, where you have ",8," (as in OPEN 1,8,15) you can almost guarantee that reference is being made to the disk drive. So you type:

FIND/,8,/

and press RETURN. This will display all the relevant lines for you and in seconds you can make sure that they are all references to the disk-drive. Now you want to change them all to ",9,". Easy! You type:

CHANGE/,8,/,9,/

and press RETURN, and the job is done for you instantly. (Note: the old 'string' is typed first; the replacement string second.)

I used it, too, in a case where I originally had two GOSUBS, each used several times. I realised that if I altered the text slightly, one GOSUB could replace the two. Assume that they were originally GOSUB 2000 and GOSUB 9000. Having altered GOSUB 9000 so that it would cover either eventuality, all I needed to do was to type:

CHANGE/GOSUB 2000/GOSUB 9000/

followed by RETURN and every reference in the program to GOSUB 2000 became a reference to GOSUB 9000.

Anyone who has done any programming at all will appreciate why I would have bought HACK-PACK for these three commands alone.

TOOLKIT is the first of the four options on the main menu. However, it features again in the third option (install TOOLKIT and RAM-DISK). The second and third options are "install RAM-DISK" and "install Compressor". Strictly speaking these two options are separate. However, a note in the program itself suggests that Compressor (which has caused difficulties in some cases) is best employed in conjunction with RAM-DISK. So let us look at RAM-DISK first.

The principle underlying RAM-DISK is that it brings into play a part of the computer's memory which is not normally in use. But it uses it almost as if it were an additional (but much faster) disk-drive. Normally it uses two chunks of memory at the top of banks O and 1. But if you have the necessary skill you can allocate to it any number of separate 256 byte pages anywhere in the machine. Here we'll keep it simple.

Having loaded HACK-PACK, you select option 2. When RAM-DISK has installed itself, it operates like a separate disk-drive and assumes device number 9. (This can be altered, but again, we'll keep it simple). Pausing for a moment, we have now achieved a situation in which we have two disk-drives for the price of one (+ the cost of HACK-PACK). The memory available on RAM-DISK is of course limited. But there is enough to enable quite a lot to be done. For instance, you can copy from one 'drive' to the other; you could use RAM-DISK to hold the program and store data on disk in the other drive.

What if you already have a second drive, numbered 9? The short answer is that you should switch it off until you have mastered RAM-DISK.

Because anything loaded into RAM-DISK is in memory already, the speed is beyond anything to which we are accustomed. You could load a 'menu' program and a series of other short programs into RAM-DISK and flit between one and the other. You can use the COPY command (as on the Amiga) to transfer programs and data files from floppy to RAM-DISK, and at the end of a session, a single command will dump all the files back on to the floppy disk. (There is much, much more to RAM-DISK and you will spend many happy hours experimenting with it.)

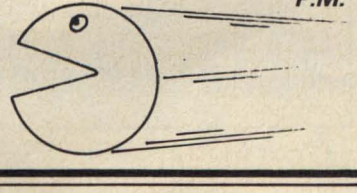
It should be obvious that it is an advantage to have the TOOLKIT options available on RAM-DISK. That is provided in option 3, and there is no need for me to elaborate.

I now turn to COMPRESSOR.This, of course, reduces the space a program occupies by squashing it together, having removed 'dead wood' (e.g. spaces and REM statements), and packing as many statements as possible on to each line. Whilst this is happening, you are not left without anything to occupy your attention. The compressing takes three 'passes' and line numbers appear on the screen as they are processed during each pass. And at the end you are given a short list showing how many GOSUBS there are, etc. What sort of reduction is achieved? I compressed a public domain program which occupied 32 blocks, untreated; after being processed, it occupied only 26 blocks. That represents a reduction of something like 19%, which is significant. Obviously one could not expect similar results if the bulk of the program were data. And in my view the original program should always be kept because when the compressed program is listed, it is difficult to read. But for making more compact the program you intend to RUN, the COMPRESSOR is excellent... especially if the compressed program is to be loaded into RAM-DISK where space is at a premium.

I have followed the advice given on the HACK-PACK disk in the drive and type RUN "COMPRESSOR". You are then asked if you want to deal with a program on device 9, so you say Yes, and, when prompted, name the program you wish to compress. At the end of the day your compressed program will be in RAM-DISK, distinguished from the other not only because it occupies fewer blocks but also because it has "C" added to the name (e.g. "INCOME.C" from "INCOME").

The HACK-PACK manual is neat, readable, and not over-elaborate. This intriguing and useful program produced by SYSTEMS SOFTWARE (OXFORD) LTD. is a bargain. Most C128 owners would find it a useful addition to their armoury.

P.M.



News Maker 128

The latest DTP product to turn every C128 owner into a Fleet Street Hack

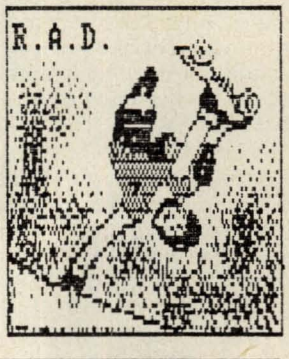
Last month I reviewed Sketchpad *128*, a complete *80* column graphic tool designed specially for the C*128*, *1571* drive and the *1351* mouse. Sketchpad takes full advantage of the crisp *80* column graphics capabilities of the *128*. Allowing smooth freehand drawing with a selection of brush tips, clip art features including cut & paste, 3D solids, *640* x *200* pixel resolution with full printer support.

News Maker *128* is the partner for Sketchpad giving access to a complete C*128* desktop publishing system. Anyone can create professional looking newsletters, posters, signs, reports or even reviews such as this one, produced on page exactly as you see it.
News Maker *128* can be used as a stand - alone product, without the support of Sketchpad if necessary. On hand there are many powerful graphic commands. These enable you to draw directly onto the page using lines, box circle, freehand, fills, pixel editor or even clip art features."Print Shop" graphics may be dropped into page. The usual cut and paste also apply.

Great new 128 DTP system from USA.

Available now from Financial Systems Software, you are invited to join in the DTP revolution. Get set for the next decade. Your own creations in print ! News Maker 128 uses its own, or almost any other CBM PETASCII text files making it possible to use your favourite word processor in complete harmony. The compatibility of News Maker to run with other programs makes it a great program to upgrade to. I would recommend that you use Sketchpad with this as a deadly duo, but any Basic 8 system product is compatible. This product harnesses the full power of your C128, for owners of the 64K video chip you can scan the whole page of text on screen quickly and with complete ease. For those that are lucky enough to have a 1750 RAM expansion unit you will be able to instantly call upon 45 different fonts, five full screen size graphic images and five full pages of text.

R A D =
e n e =
a d s =
d = t =
= = r =
= = o =
= = y =
= = = =
* * * *



Super selection of type-faces at your disposal.

9 different Sizes

Printer Compatible !

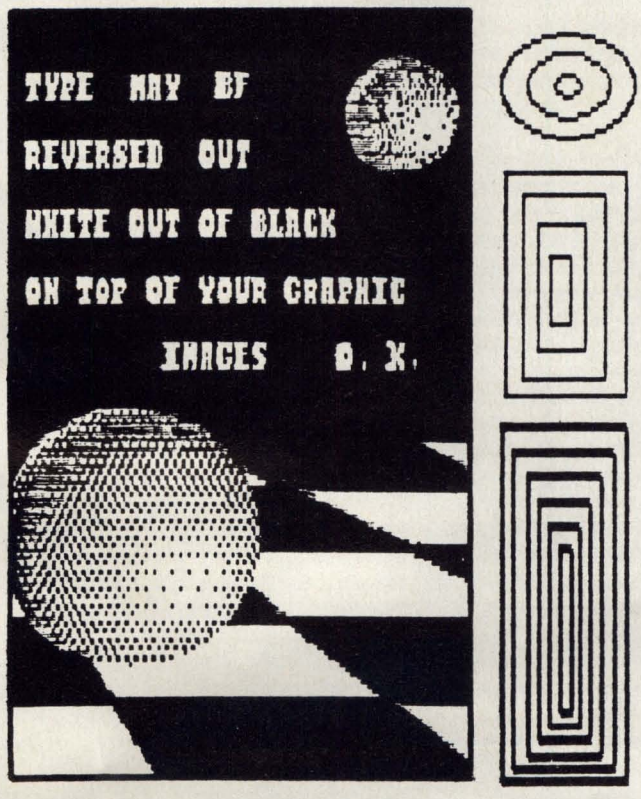
The entire program is menu driven by drop downs produced by clicking the mouse. A good range of printer drivers cater for all the main "types" of printers. A further three options for secondary address, print height and density allow many forms of finished print.
Printer set-up is easy to configure and takes no time at all.

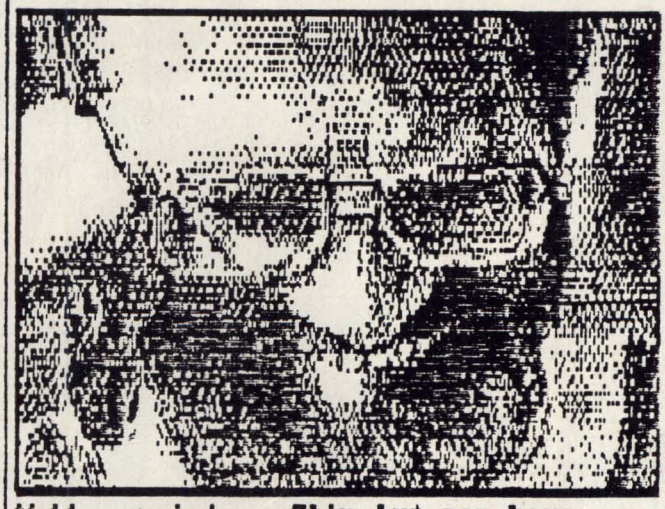
Boot up News Maker 128 and you are presented with a choice of either entering the main program or making your text files in the Note Pad.
Here Files created are later "poured" into your page. These news items can be dropped into your page easily by indicating the areas using a familiar "rubber band" box method. Any text over is held in a text buffer to be positioned and used later.

Typefaces to suit most occassions are of course included.18 different kinds to choose from.

The quickest method of producing a complete page is to type directly onto the page screen. This page was compiled that way. You can see exactly what you get as you are typing.
However if you compile bits and pieces over a period of time then making news files and pouring them into your page will be best suited.

DTP lands on moon.





Hello again!....Clip Art man here....

Menu bar at the top of the screen allow standard page layouts, or 2, 3 or 4 column page layouts. Block erase or block fill.
Under the Art Dept menu you may choose draw freehand with 15 brush tips at your disposal, or draw straight lines boxes and circles all with a range of nine thicknesses. Erase or pixel edit give this product a really great art appeal.

Clip art features include the use of "Print Shop" graphics, Sketchpad 128 pictures or Brush Graphics. These can be manipulated by cut / paste or mirror imaging as well as flip over or reversing black to white.

Option menu lets you choose the possible disk drive change and open another disk as well as the loading of compiled pages and saving pages. Graphic images can be saved here also. The printer set up may be altered through this menu allowing a good range of printers to be accessed.

Available from :

Financial Systems Software, 18 High Street, Pershore, WORCESTER WR10 1BG
Tel 0386 553153 PRICE £34.95

"STRING 'EM FROM THE YARDARM!!"

Peter Gerrard with his Piratical Thoughts II

IT was interesting to see the correspondence brought about by my thoughts on piracy in the November issue of CCI. My views, it would appear, are shared by some but not all. So let me tell you a little story...

Back in my days of being in the employment of Commodore Business Machines, I well recall the impending launch of the Commodore 64. I left the company when the machine was merely a strong rumour on the horizon, and was editor of this illustrious journal when rumour became reality and the machine made its debut at a computer show. As it wasn't that many months after I had left Commodore, there were plenty of their employees at the show that I knew and could talk to. One of them, a chap from the repairs side of things, sought me out at the bar (I wasn't difficult to find!). In his hands he clutched a disk, and on that disk were the contents of a game. The game wasn't quite complete (very close, nevertheless), but it eventually appeared in cartridge form for the 64, and it's mildly amusing to find it advertised in an upgraded form on the outside back cover of the January 1989 issue of CCI, almost seven years after I first saw the game. It is, of course, International Soccer, now graced with the name of Emlyn Hughes and being marketed on tape or disk by Audiogenic.

Emlyn and his "pal" Princess Anne would no doubt be horrified to learn that I was offered copies of the program, on disk, from an employee of Commodore Business Machines, before the game went on sale. I wasn't particularly interested, I can appreciate its merits as a program but that's about it, but what would have happened if I had taken a copy of that disk and then copied it (for it was not protected) and handed over disks in return for money to vast quantities of people who would no doubt have been very interested in having a copy? Would the game be in the position that it now enjoys, hailed as a classic and endorsed by Emlyn Hughes and "The Match"? Or would it have been copied so much that it became pointless to market it? Or would something else have happened to it?

Now I'm not saying for one moment that I was the only person offered a copy of the disk, but I may have been the only editor of a Commodore magazine that the chap from the repairs department at Commodore Business Machines knew, and as such I was in a position of some importance within the Commodore industry. I could have exposed him as a pirate, I suppose he was taking a calculated risk to that extent, but I didn't. I didn't take a copy, either (I even bought it on cartridge, years later), and as far as I know no major piratical conspiracy ever developed with the man from the repairs department behind it.

But the point is this. I could have taken a copy and distributed it to all and sundry. They, in their turn, could have copied it and carried on the chain. Someone, an enterprising programmer having access to a wildly popular program, could have altered it a little and offered it to Audiogenic and suggested that some popular footballing person like Emlyn Hughes endorse it. The program is now being sold without the merest whiff of piracy (and I'm sure there isn't any anyway). But it might have happened.

Who would have lost money? The original author of the program, for sure, in lost royalty revenue. Commodore would also have lost out, but is that not important to some computer users precisely because they are Commodore? I don't know, but it's an interesting point.

"I make my living out of the computer industry, and am highly grateful to it for its continuing survival."

I make my living out of the computer industry, and am highly grateful to it for its continuing survival. Without the efforts of people writing for computer magazines, whether you like what they write or not, you would not have computer magazines. Without the efforts of some extremely clever programmers (Jeff Minter, for example) you would not have the software that supports the computers. Jeff may now be in the financial position where he doesn't have to worry about royalties any more, but he wouldn't be there if he had been ripped off all along the way. If he had have been, no doubt he

would have soon given up programming for money and earned his living in some other fashion, the Commodore (and Atari, for that matter) world being the worse for his loss.

So when I still see advertisements in CCI that state "AMIGA user wants to swap to the very latest stuff", or "AMIGA user wants to swap all the latest hot stuff, 100% reply. Overseas welcome" (January 1989 issue, page 128), it does annoy me somewhat. You can't swap software without having a copy to swap, agreed? If these people are only swapping originals, then all well and good, but why don't they say so? Not enough wordage space in the advertisement? Someone from West 83rd Street, New York (same page, same issue) manages to fit it in, directly below an advertisement that starts off with the words "Swapping crazy", by an ironic coincidence.

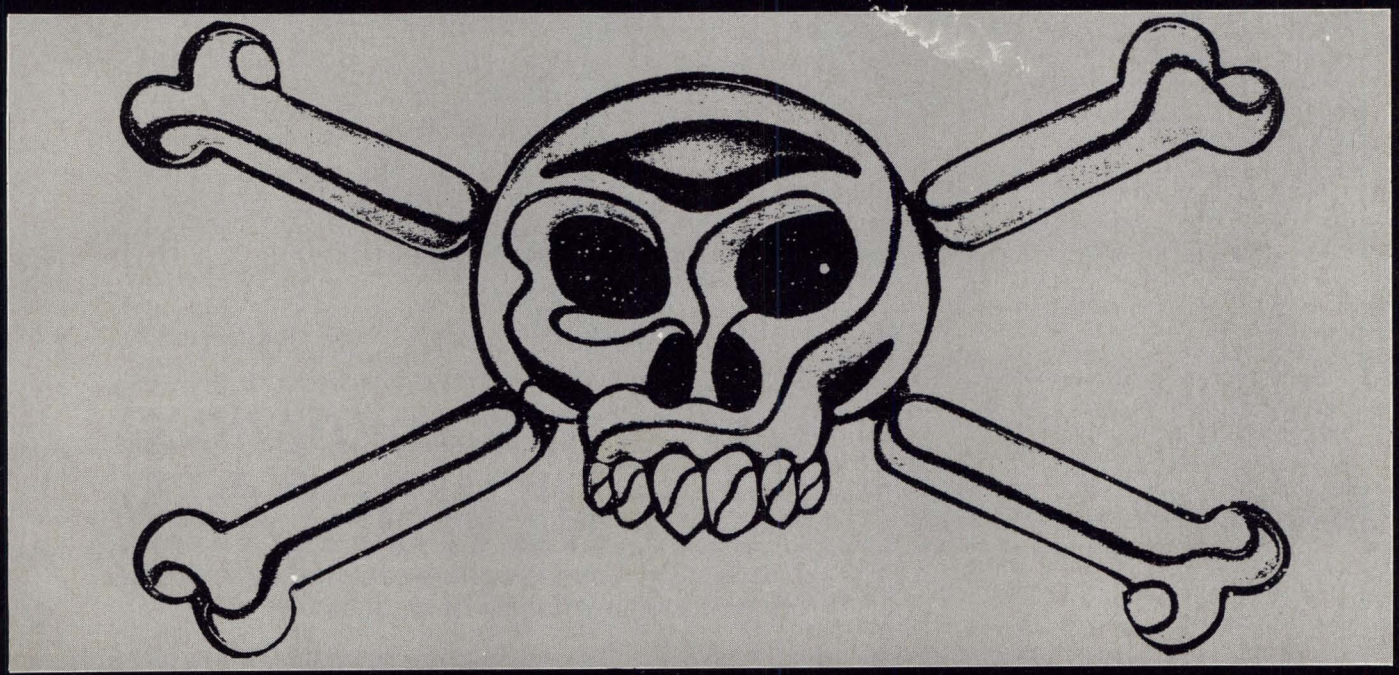
audience. And why not? There's no point in advertising if nobody is going to see the advertisement. But Mark's argument that "you would only have to produce a handful of originals and leave the rest to the pirates" falls down, really. Okay, so a large number of people would see a program that included advertising for CCI. Some people would interpret that as CCI condoning piracy for commercial (advertising) gain. I know they don't, but some people would see it that way. Mark is not trying to earn the daily crust by writing computer programs, otherwise he would not advocate leaving everything to the pirates.

When computing is a hobby, you are entitled to your views on piracy. When it is your living, I would argue that your views carry a greater weight. And there is another, more sinister (if I may use that emotive word) side to piracy and the sort of

You might imagine that someone who sets up a virus that manages to find its way into the United States defence system is a great joke. It would be if the panic buttons were pressed and atomic warheads started flying about all over the place because of some fool's idea of a "great joke". Absolutely hilarious.

I'm sure that the people who start these things off just do not think out the consequences of their actions. The people advertising "swapping crazy" may or may not be people who have started such viruses, passing them on. A virus, once started, is very hard to get rid of, and swapping in the manner which seems to be indicated by these advertisements is not only breaking the copyright law but is also threatening much more.

Suppose that, in all innocence, you answered one of these advertisements and received an Amiga disk with some great new



If you can't swap software without having a copy to swap, which is clearly a true statement, then do these people have only one copy of every game? Of course they don't, and that makes them pirates. A new programmer writes a megagame, it sells thousands and is copied by every one of these "swapping crazy" characters, the programmer makes a fraction of what was originally expected and so never writes another program again. Who's losing?

The programmer, not the pirate, because someone else will fill the space provided and write another game. I note that Mark Ford argues in the letters section that if he were to write a program that included advertising for CCI, then CCI would want that advertising to reach a large

small advertisements that appear in magazines such as CCI.

We have heard a lot in the popular press and seen a lot on the television about the topic of viruses. Viruses are no joke. If I were ever the victim of a virus and had, say, six months' work wiped out by such a virus, then the person responsible for it would most certainly be swinging from the yardarm. I imagine that that would be the view of most people working within the computer industry. If CCI's subscription list were to be removed from a disk, I don't suppose that they'd be too happy. If Jeff Minter's latest mega-game were to be systematically destroyed sector by sector, track by track, I can't see him sitting down and listening to a Pink Floyd track in a benign state of mind.

games on it. Since you do not quail at the thought of copying, you copy the disk and give it to a friend of yours and that friend copies it and gives it to someone else. And suppose that disk has a virus on it. Suppose that the last friend in the chain is a nurse or doctor who decides to introduce the game into their place of work as a way of passing time when off-duty and waiting to start work. Suppose that the virus activates itself and wipes out all patient records, just as someone is carried in as an emergency case. Their record can't be recovered, and they die from the wrong treatment. It hasn't happened yet, but if it did, who would be to blame?

P.G.

Extra! Extra!

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40 Bowling Green Lane, London EC1R 0NE

Please send me ☐ copies of NEWSROOM at the special price of £24.95
Please make cheques payable to Croftward Ltd. or debit my Access Card No.

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Signature ..... Exp. date .....

Name .....

Address .....

.....

Please allow 28 days for delivery

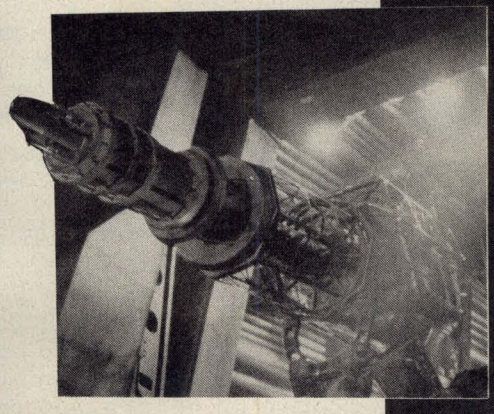
U.S. Gold Over-the-moonwalking

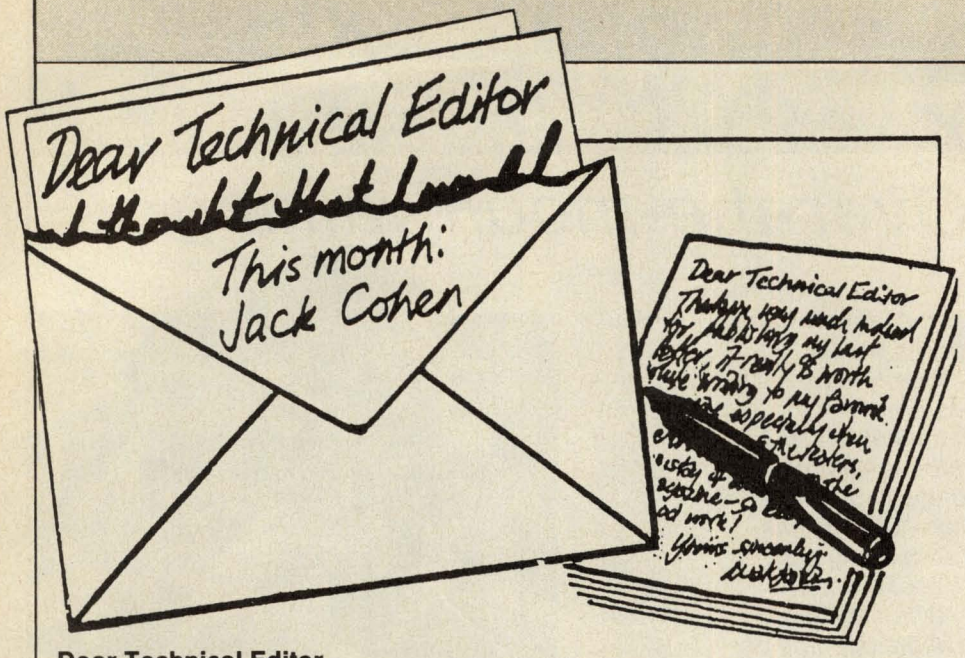
U.S. Gold has licensed Moonwalker the fantasy film adventure starring Michael Jackson. As well as incorporating some of his current hit records, Moonwalker tells the story of the rescue of Michael's good friends from the diabolical MR BIG. As evil mastermind who is determined to destroy anything or anyone that stands in the way of his dastardly dreams becoming a reality - MR BIG has met his match. With the passing of a shooting star, Michael gains amazing powers of transformation. the special effects are spectacular. When cornered by Mr Big's evil soldiers, gathered at the opening of a dark alley; as each man aims his gun down the shadowy dead-end passage, a fabulous futuristic car rockets towards them and takes off over their heads. As the soldiers make a desperate bid to shoot the car down from the sky, the bullets ricochet off the gleaming bodywork of the car.

In further confrontations Michael transforms into a magnificent silver robot with supersonic weaponry. The final conflict sees him transform into a vast spaceship that surrounds itself with a powerful forcefield to reflect from Mr Big's gigantic laser gun.

U.S. Gold is very confident of the game's appeal. They tell us that the rescue of Michael's kidnapped friend combined with the astonishing transformation, battle and chase sequences make Moonwalker an ideal title for conversion into a home computer game -with the endoresement of a super star - Michael Jackson.

Distribution in conjunction with Keypunch Corporation of Minneapolis, ST Paul, USA, Moonwalker will be released worldwide in Autumn 1989. Keypunch have several full price labels whilst accounting of 25 per cent of the American budget market.





Dear Technical Editor

I am considering buying a disk drive for my C64c. I have a friend who has a 1541c fitted with Dolphin Dos but I have been advised that the Excelerator+ would be a better choice, could you please advise me which is the better disk drive.

I also own a Commodore MPS 803 printer which prints raised g's and p's. Could you tell me if a word processing program would instruct the printer to drop these letters giving a better looking result.

Yours faithfully
J. C. Currie

Dear J. C. Currie

A 1541c fitted with Dolphin Dos is probably more compatible with all software since you can switch out Dolphin Dos for such software.

On the other hand, if you are interested in graphics then the Excelerator + with GEOS 1.3 should be better for you.

Both are obtainable from Evesham Micros (see our adverts).

A good wordprocessor program could instruct the printer through the graphic command to have user defined characters for the lowered 'g' and 'p'.

Check with your dealer before you buy your program.

Dear Technical Editor

Could you please send me the pokes to Dissenable/Enable the LIST command, RUNSTOP/RESTORE, all LOAD and SAVE commands, and any others you think I may be interested in for the Commodore 64.

Thank you
Kevin Robson

Dear Kevin Robson

A POKE that disables both RUN/STOP and RUN/STOP-RESTORE and also makes a mess of LIST, SAVE and LOAD is POKE 808,234 for disable and POKE 808,237 to re-enable. Another useful POKE for the 64 is disable SHIFTed keys — POKE 657,0 and to re-enable POKE POKE 657,128.

And you can also try POKE 650,64 to disable all repeats with POKE 650,128 to re-enable all repeats.

Dear Technical Editor

I have a problem with sprites and raster interrupts. I am currently writing a program (in assembler) that has to display a map on the screen using sprites to represent its features. The size of the map is 13 x 7 sprites. I can display 8 x 7 sprites by the use of raster interrupts but when trying to display 13 x 7 (13 on the same row) it doesn't work and the display flickers. After a few weeks of trying to work the problem out I realised that it was to do with how the raster displays things on the screen. I am writing to ask how to get around his problem as I don't know how to. The best I can do is display 8 sprites on one interrupt at row x and on the next interrupt at the same row, display the remaining 5 sprites, this displays the map but it flickers as each set of sprites are displayed at 1/30 of a second.

I have seen programs that do use more than 8 sprites on the same row so it must be possible somehow.

I would be very pleased if you could help me as I'm not getting much sleep over this.

Thanks
Sean Lane

Dear Sean Lane

The normal maximum number of sprites per line is 8 as you have found. To get around this problem requires you to generate multiple interrupts in each frame. Because of the length of such a program I cannot give a listing here.

I can refer you to page 419 of Raeto West book 'Programming the Commodore 64' which is still available from Biblios Ltd of Horsham in West Sussex ISBN 0-9507650-2-3.

On that page is a program for 32 sprites and sufficient information for you to program your own routines.

Dear Technical Editor

I intend to start a small business in the new year, to this end I would like to use my CBM 64 to help me. However, I do realise that this computer is now considered nothing but a games machine, but it was at one time thought to have business potential. In fact, some people I have read about, have used it to help with their businesses.

I would, therefore, like to purchase the CBM 1764 ram expansion unit and probably a second disk drive. Now the problem is this because the CBM 64 has been relegated to the status of a games machine, in this country at least, it is very unlikely that there will be any serious British software that will make use of this expansion unit. Consequently, I will have to look to importers of American software.

Therefore, apart from GEOS could you possibly list the names of some American software that can make use of the expansion unit, such as a word processor with a spelling checker, spread sheet with graphics, a versatile database that can produce a names and address list and maybe an accounts programme.

I realise that my request is slightly unusual but in order to keep costs down and have, hopefully, a competitive edge it would

be ridiculous not to use an available resource.
Yours faithfully
B. C. Richards

Dear B. C. Richards
Timeworks may bring out a suitable database by the time this issue reaches you. I do not think that the 1764 Ram expansion unit has sold well enough to warrant major software changes or new software to make use of it. Even GEOS who have an option to use the RAE do not seem to publicise the fact very much.

If any of our readers have the answer to Mr Richards' problem then please write to CCI.

Dear Sirs
Thanks for answering my last question, re the C64 clock, now perhaps you could answer this.

How do I use a 1764 Ram Expansion Unit with GEOS V1.3? It is after all so well documented! What do I change on the configure file, etc.
Yours sincerely
J. T. Bourne

Dear J. T. Bourne
There are a couple of points to check before using the 1764 RAN expansion unit with GEOS V1.3.

In the configure file find the SET UP page where there are three boxes and you have a choice of 1 or 2 1541 drives and at the bottom a box for the REU. Press return on the box and follow instructions then exit and load the 1764 software and follow those instructions.

Dear Technical Editor
I would be very grateful if you could answer these CBM Plus/4 questions for me:

1. How do I make the computer 'talk'? I know it can be done because of the speech in A.C.E. and TERRA NOVA.

2. Is there a voice synthesiser available for the Plus/4, if so, how much is it and where can I get one?

3. How do I get the border to flash and a message on the screen in my programs, while it's loading?

4. Lastly, does an OKIMATE 20 colour printer work on a Plus/4, if so, if I drew a picture on the screen using my lightpen, would it print out?

Thanking you in advance.
Yours sincerely
Steven Bell

Dear Steven Bell
1. Experiment with the following commands
VOL level range from '0' (off) to '8' (highest) then SOUND voice, tone frequency, duration (selects tone)
voice setting 1 for 1024 tones (for music)
voice setting 2 for the same 1024 sounds
voice setting 3 for 1024 settings of noise
voices 2 & 3 cannot be used together.
tone frequency range 0-1023 (selects frequency of sound)
duration range 1-65535 (selects how long played)

You won't hear any sound unless you use VOL command before using the SOUND command.

Now experiment to see if you can produce speech effects. You may need additional hardware.

2. Not to my knowledge.

3. Either can be done in basic, but not both together. This is achieved by means of a routine which is wedged into the interrupt routine.

Use the vector at $0314-$0315 and after SEI change it to point at your machine code routine to flash the border color (Basic equivalent is say 10 COLOR 4,11:COLOR 4,12:GOTO 10) and display your message in the centre of the screen.

At the end of your routine JMP to normal operating system routine whose vector is contained (on power up) at $0314-$0315.

Finish your wedge code with CLI (that is the code that changes the vector to your m/c routine).
4. No.

Dear Technical Editor
I've been the proud owner of a CBM 64 for about four years now and only recently I purchased the STAR LC10C Colour printer. I'm thinking of buying a disc drive but I'm not sure which is the most compatible with my computer.

'Is there a video digitiser for my computer, if so how much does it cost, where can I obtain this and most important of all can I use it with my printer'. I'll be most grateful for any help which you may provide.
Yours sincerely
A Heidary

Dear A Heidary
A 1541c disk drive is always the most compatible drive for the C64. There are other faster drives around but because of CBM copyright they cannot be exact copies of Commodore drives. This may affect some protected software.

As far as I am aware there are no graphic packages yet to allow the use of all seven colors available on the Star LC10C.

There is not a video digitiser available either to work with your printer.

Dear Technical Editor
Help me! PLEASE!

I recently became the proud owner of The Newsroom, a program much acclaimed by CCI. I am sure that it is desk top publishing at its best; I certainly have a lot of fun making up panels and page layouts. There's only one problem — it won't print out anything legible.

I am using a Commodore 64 (new shape), an Amstrad DMP3000 dot matrix printer and a stack interface which uses the Commodore's serial port and takes its +5v supply from the cassette port.

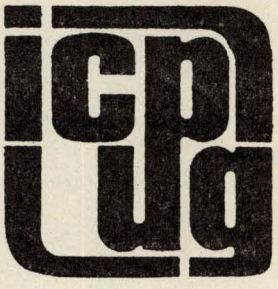
I have tried many of the printer and interface options provided for within the programme, and have even followed the advice of Tim Colledge, as given in his review in the February 1989 copy of CCI.

Please help, my sanity can take no more.
Yours faithfully
S. D. Carter

Dear S. D. Carter
The Amstrad DMP3000 is a RICO printer and also EPSON compatible. Have you tried the printer options for those printers?

I take it that your printer and interface work OK with other software. At the time of writing I have not yet seen Tim Colledge's review.

Inside the Port Serial Bus



Chris Wright of I.C.P.U.G. looks at speeding up the already fast 1571 drive.

Anyone who has used the double sided 1571 drive will readily agree that it's speed is somewhat faster than its predecessor, the 1541. This increased speed is not due to a new discovery but rather it utilizes existing technology. The 128 and 1571 both use a new method of data transfer, dubbed 'Fast Serial Mode'. This mode uses an hitherto unused wire on the serial bus cable known as the 'Service Request Wire'. This line has been put to work by transferring a high speed clock signal along with the data.

The first CIA chip in the 128 assumes more responsibility for communications and allows a whole byte to be sent at a time, instead of the one bit at a time 'Slow Serial' (1541) protocol. The speed now increases from a slow 300cps to a fast 3,000 cps. This is the normal speed of the 1571. There are two other speed transfer rates. FAST and BURST. Even this normal rate will load in a BASIC program in 15-25 seconds as opposed to 4 minutes with the 1541, and the baud rate has now jumped to 16000-28000 baud. FAST mode speeds things up even more at 4,500 cps but the real beauty is the BURST mode. Transfer speeds of 15,000 cps have been noted which is 120,000 baud, that is FIFTY times faster than a 1541. These speeds are approaching hard drive speeds and makes BURST mode ideal for loading in records from large databases like SUPERBASE.

When in CP/M mode if using a GCR format disk you get data transfer in FAST mode. Place a disk with MFM format in and the drive will automatically jump to BURST mode and stays there using the sector sizing option to select whether 128, 256, 512 or 1024 byte sectors should be used for data transfers. The new 1581 800K drive is even faster due to a full 8K buffer that is larger than the 1571/1541 buffers. GCR format is not possible in this mode as the drive can emulate an EPSON QX–10 (only 40 tracks) or in it's native mode as 80 tracks. Read/write speeds are increased even on the very fast 1571.

Coming back to the 1571 which is the drive most of us will have, it is completely programmable. Any disk format can be used, as long as it is compatible with CP/M. MS-DOS files can be read and written to. In the library we have two utilities that allow you to format in many different ways with different emulations and a program that allows you to read and write MS-DOS files.

We now have in the library a utility called C1571.COM that is useful and exciting. This utility disables sector verification on disk writes that really slow the1571 down.What this means is that regardless of which mode you are in, when the drive writes to the disk it will immediately read it back again to make sure the sector was written correctly. This is fine but so slow and is not always needed. C1571.COM to the rescue! This prevents the 1571 reading back the files to verify and you get a straight saving of files. Consider the table below for speed comparisons, with C1571.COM enabled and with it disabled.

SIZE	SAVE TIME	SAVE TIME (with C1571.COM)
50K	1.55 sec	1.05
2K	0.20	0.14
4K	0.20	0.15
6K	0.24	0.16
28K	1.02	0.36

As you can see this utility is a powerful piece of code especially to those who use modems to transfer software as it lowers your B. Telecom account due to reduced on line times.

Another new utility in the library is CONF.COM. This has new commands and on line help much like the terminal users use MEX. CONF correctly passes parameters to MEX. New commands like CURSOR, which allows you to specify the type of cursor you want like square, underline, blinking, non-blinking and so on. DATE is also incorporated, which allows you to set the date and time from within CONF. The MAP command allows you to print both character sets currently in memory. This is especially useful if you had redefined the character set using a character editor and wanted to examine both sets. There is a PARITY command for modem users and a POKE command to poke various locations in memory. A REPEAT command allows you to increase the rate of the key strokes or eliminate them altogether. Another nice utility for the C128 and it's free! If you wish to know more about The Independant Commodore User Group, now in our tenth year and all machines catered for, then please write to the Membership Secretary, I.C.P.U.G., 30 Brancaster Road, Newbury Park, Ilford, Essex, IG2 7EP.

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Oskars 1988

Selecting the very best of the year is always a highly disputatious affair...Everybody has a favourite that no-one else thinks is worth a toss. "So what's special about that?" Goes the indignant cry "it's just a rip-off of..." Now look at ..... It's got to be a winner..." It's a hard life being a judge: sending a man to the gallows, choosing a Miss Universe or selecting the Oskar winners. Some of us would rather have teeth pulled!

Especially this year, 1988 was a year of change. It was a period in which standards advanced rapidly as, apparently, the predicted death of the 64 failed to happen and it was revitalised with some software that would not have disgraced the Amiga just a few months before.

The Amiga itself took a jump into the sparkling future with games and other software suddenly benefiting from the expertise that had been gained over the difficult first three years of its life.

The best thing about the year from the point of view of entertainment was the sheer originality that must make it one of the greatest years the home computing world has ever known. Games like Captain Blood, Rocket Ranger (shortly to emerge as a 64 product) Sword of Sodan, Virus, Emlyn Hughes International Football, Times of Lore, Interceptor, Robocop and Platoon and many more appeared. However even 'lack of originality' had its day and one of the year's best sellers was, believe it or not, Football Manager II a hit on all formats. Oh well, no year can be perfect...

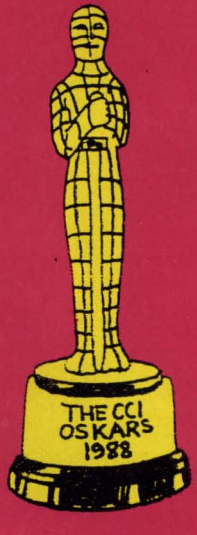
Another interesting aspect was the appearance of names that have not had too much success in the recent past. Ocean have clearly made great strides creatively and from Combat School to Operation Wolf have gained increased respect. Audiogenic, not usually to the forefront these days, scored with their Emlyn Hughes Football, Telecomsoft jumped, at last, into the top

The Megastars

class and Mirrorsoft, with their own name, their new label ImageWorks and their association with Cinemaware also made a substantial impact.

Last year's Software Company of the Year did not release very much except for an unusual for them, sports simulation, Microprose Soccer. nevertheless it was well up to their usual excellent standard.

Overall, it is possible to say that there has been such an improvement in the quality of the programming and the imagination that has been injected into it that what looked exceptional in 1987, now looks ordinary in 1988. If software goes on getting better at the same rate this year...Well, the mind just boggles at what we may be awarding Oskars for this time next year.

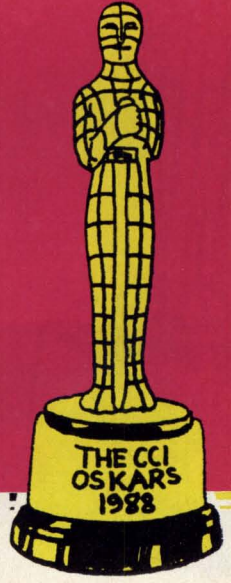


Arcade Game of the Year

It is really "Arcade Style" game that we were looking for not one that had to be playable for coins. Barbarian II far surpassed its predecessor and hit the top of the Charts fast. A late contender was Microprose Soccer produced by the hot programming team, Sensible Software for Microprose. It took the prize for the 64. Speedball from another top rank set of programmers The Bitmap Brothers for ImageWorks looked very good but the votes came raining down for Discovery's outstanding Sword of Sodan.

Arcade Adventure of the Year

For the 64, Last Ninja II was very popular but Palace's Barbarian II was a clear winner. On the Amiga there was close competition between Cinemaware/Mirrorsoft's Rocket Ranger and the smash hit Jez Sans' team, Argonaut, wrote for Telecomsoft, Starglider II another follow-up that far outscored its prequel. Starglider II was sensationally well done but, Rocket Ranger was convincingly persuasive as one of the best games ever.



cont. on next page

continued from page 51

The Oskars 1988 – The Megastars

Best Sports Simulation

In the 8 Bit field, Microprose Soccer had again to be closely considered but for once the U.S./U.K. company got upstaged on their own ground by what some of us think is the best football game ever, Emlyn Hughes International Soccer from Audiogenic. (Well done, Peter Calver!)

Adventure of the Year

As usual leading the pack for adventures is the wondrous Anita Sinclair's Magnetic Scrolls with two excellent releases in 1988: Fish and Corruption. Infocom of course came into the reckoning with Beyond Zork. But other than those there was little to rave about. Some of us liked Corruption (we would, wouldn't we?) but the majority vote went to FISH for its brilliant originality and the sheer elan with which "the most intelligent woman in Software" as Anita has been called carried off this unusual subject.

Best Shoot 'em up of the Year

The King of the Shoot 'em Ups is the title that has been given often to Andrew Hewson. This year he hit the top spot in the popularity poll with an outstanding example of his art — Cybernoid II. For the Amiga, the Bitmap Brothers struck early in the year with a success for Melbourne House, Xenon. Psygnosis' Menace was also a highly successful sample of the class but Xenon just got the choice.

The Most original Game of the Year

Although there was a great deal of imagination put into software this year, some names were on everyone's lips in this category. Captain Blood was a strong contender for both the 64 and the Amiga prizes, two Telecomsoft hits were in there too, Virus and Carrier Command, and the ubiquitious Rocket Ranger was also highly regarded. The winners were Captain Blood for the 64 and Virus for the Amiga.

Best Role Playing Game

For the Amiga, the two finally fighting it out were Speedball and Turbo Cup. Speedball was fast and good but Turbo Cup was adjudged to be the closest to a total simulation of a real race, So Loriciel's Turbo Cup got the award.

For the winners of this increasingly popular area of gamesplay, we asked the editorial team of GM, the new Role Playing Games magazine, to join us in our deliberations. After a long and stormy session in which the merits and demerits of Times of Lore, Dungeon Master and Ultima V were heatedly exchanged. The unanimous (yes, it was, just!) verdict both for the 64 and the Amiga was the fifth in the amazingly successful series — Ultima V.

Best Graphics of the Year

Barbarian II (again!) and Last Ninja II (again!) got consideration as did Ocean's Platoon. Platoon was runner up to Barbarian in the 64. The two contenders far away ahead of the rest for the Amiga were Rocket Ranger and Sword of Sodan. We just couldn't separate them so they are joint winners.

Software Group of the Year

We had to consider Sensible Software past winner's for Wizball. Not only were they responsible for Microprose Soccer but they also were involved with the arcade areas of the highly successful Times of Lore for Origin. However, on the 64 there was one company that made exceptional progress by a dedication to quality in some highly accessible games. We outstanding progress from Platoon at the beginning of the year right through to Operation Wolf, one of the top games at the end, the Oskar for the Software Company of the Year rightly goes to Ocean.

For the 16 Bit class, it was between the Bitmap Brothers for Xenon and Speedball, Jez Sans' Argonauts for Starglider II and other projects in which they were involved (very quietly) and Bob "Andy Moss shook my hand" Jacobs' Cinemaware for King of Chicago, Three Stooges and the marvellous Rocket Ranger. The achievements of Cinemaware justifiably took the prize.

The Best Game of the Year

It is always more difficult to come to a fair conclusion about the top award. They are all different, the best games often very different indeed from anything else. This year a whole raft of games forced their way into contention. Starglider got votes as did Barbarian II. Captain Blood had its admirers and the enthusiasts for Virus, Sword of Sodan and Ultima V had almost to be held apart. At the end it is always a compromise but emerging from all the argument was one game on the 64 that everyone agreed had such superior qualities it deserved to win. That game was Audiogenic's Emlyn Hughes International Football.

For the Amiga it finally came down to two: Interceptor and the eventual winner: Cinemaware/Mirrorsoft's stunning Rocket Ranger.

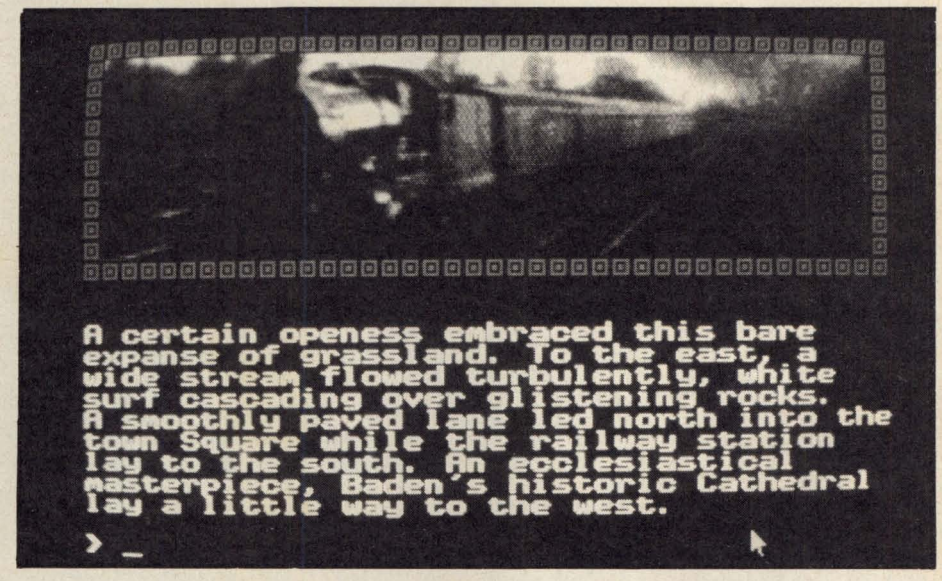
This month loyal readers, you are in for a treat, as your hero has obtained an exclusive preview of Parisian Knights, the new epic from Abstract Concepts. Not only that, but I have been a witness to Fergus McNeil's fierce outburst against those that condemned his last project, Mindfighter. Make no mistake, the finger is well and truly pointed!

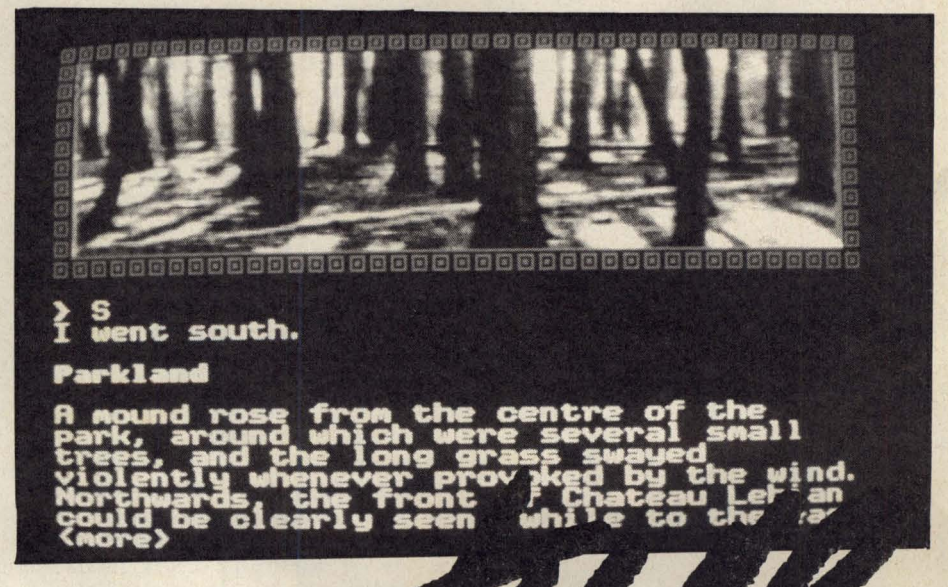
BY ANDY MOSS

PARISIAN KNIGHTS

They came mob-handed it seemed, first there was the gorgeous, pouting Zia, publicity person from Activision acting as Mother Hen, then came Anna Popkiss, her brother John (co-author of the adventure) and lastly Fergus himself, looking decidedly like he had been up all night (which of course he had). These last three characters represented Abstract Concepts and they arrived clutching hot- off -the -compiler copies of Parisian Knights, their latest project which as Fergus put it *"takes us a step further to proving to people that we have a great adventure writing system here"*.

The game is set in 1927 Paris, and you play the part of French secret agent Philippe Grouchy, back in Paris after a mission in London, where you had to abduct a foreign professor and promptly botched the job. A chance to put your shattered reputation back together has come up, as a very important document, the "Treaty of Versailles", has been stolen. To make matters worse, there is a mole somewhere in the French spy network, and you realise that he is responsible for your London mission failing. The adventure then is effectively in three parts. The first is to go to Baden Baden and recover the stolen treaty, then find out the identity of the mole and lastly either capture or kill the traitor.


A certain openess embraced this bare expanse of grassland. To the east, a wide stream flowed turbulently, white surf cascading over glistening rocks. A smoothly paved lane led north into the town Square while the railway station lay to the south. An ecclesiastical masterpiece, Baden's historic Cathedral lay a little way to the west.
> _


> S
I went south.
Parkland
A mound rose from the centre of the park, around which were several small trees, and the long grass swayed violently whenever prov ked by the wind. Northwards, the front Chateau Le an could be clearly seen whi e to the
<more>

Adventure

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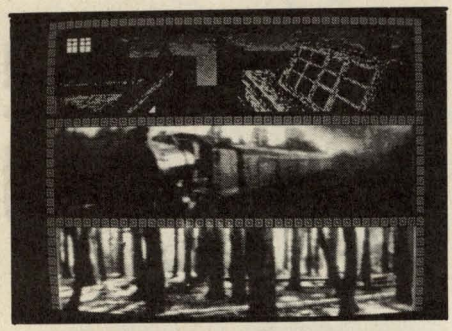
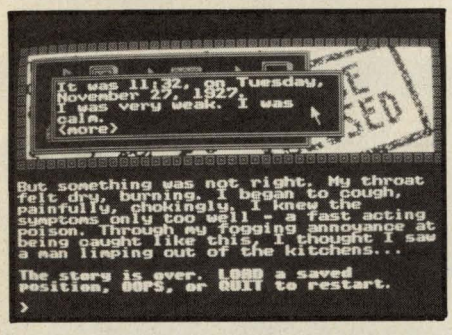
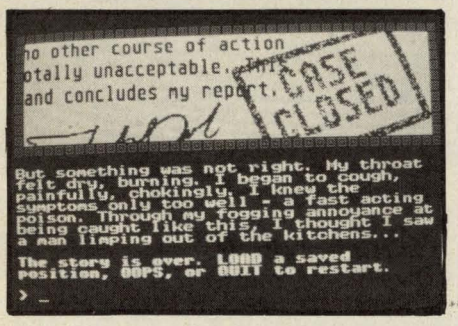



It was 11:32, on Tuesday, November 27, 1927. I was very weak. I was cold.
<more>
But something was not right. My throat felt dry, burning. I began to cough, painfully, chokingly. I knew the symptoms only too well - a fast acting poison. Through my fogging annoyance at being caught like this, I thought I saw a man limping out of the kitchens...
The story is over. LOAD a saved position, OOPS, or QUIT to restart.
>


no other course of action
otally unacceptable.
and concludes my report.
CASE CLOSED
But something was not right. My throat felt dry, burning. I began to cough, painfully, chokingly. I knew the symptoms only too well - a fast acting poison. Through my fogging annoyance at being caught like this, I thought I saw a man limping out of the kitchens...
The story is over. LOAD a saved position, OOPS, or QUIT to restart.
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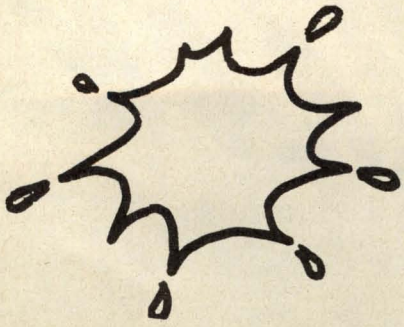


There are some atmospheric graphics to go alongside the text, and Anna pointed out *"We tried to use digitised photos again as in Mindfighter, but the end result did'nt have the feel we were looking for, so we reverted to tasteful pictures instead"*. The core program has undergone some radical improvements since Mindfighter, as Fergus points out. *"The NPC's (non player characters) have been improved and they now have much more intelligent roles to play in adventure. Our 'follow' routine has been made more powerful and is now on a par with the routine that Level 9 use"*.

The best new idea for me though, was the full multitasking concept which lets you play a number of games simultaneously, thereby allowing you to hop from one puzzle straight to another to try to crack without having to play through the game again to reach it. This is very useful also when you may have left an object in part one and need it say, in Part three. Fergus believes this is truly the first multi-tasking adventure available, and who am I to argue?

The game has a feel akin to Infocom's Deadline, or Witness, although Fergus points out that "Infocom are not keeping up to date with their adventure system and while they are still a great force, they need to improve their parser".

Parisian Knights looks like just the sort of adventure I love, lots of mystery and mayhem and a cracking good storyline. Personally I found Mindfighter very enjoyable, and wrote so at the time, but there was a certain adventure reviewer who hated it and at this point in out chat, Fergus and Anna and John got quite irate. *"We took a lot of stick from Keith Campbell over Mindfighter, which was totally over the top. He found the whole thing dull, miserable and depressing, and proceeded to smash it down in flames. I will not take that from anybody, it was quite unnecessary"* said Fergus, *"the subject matter was about nuclear disaster, so how can you make that light hearted? We tried to show how a serious subject could be an interesting adventure and just because he couldn't understand what was going on he condemned it"*.

Needless to say I totally agreed with them, and anyway I gave the adventure an 8 mark because I took the time to play it through quite a way, but let's not dwell on that. And off they went back to Southampton knowing full well that they had something that would show a few people a thing or two. Parisian Knights should be ready at the end of this month, on all formats.

ADVENTURE NEWS

ACTIVISION SIGNS CROSSWELLER
Remember David Crossweller ex-boss of French adventure house Infogrammes? He has surfaced again heading up a new software house called New Frontier

Productions, and is set to release a number of titles towards the back end of the year. Among the new products are promised a range of adventures, and if Davids record with Infogrammes is anything to go by, they should be something to look forward to.

EASTENDERS SPOOF FROM A1
A new budget graphic adventure from A1 Primary Distribution has been released spoofing the hit TV series Eastenders. Titled Deadenders, the action centres around the Herbert Square community and specifically the plight of Effi and Willie, who has been found squashed flat with two holes in his neck.

JOAN OF ARC IMMINENT
One of the few games that has kept me up till dawn and then some, is due out very soon. Joan of Arc, from German based publisher Rainbow Arts is a wonderful mix of role playing, strategy and action as you battle to rest control

More Adventure!

of France from the dreaded English invaders. Similar in parts to Defender Of The Crown but with more options and better gameplay, this is one to look for. £9.99.

A SUITE OF ADVENTURES FROM RAINBOW ARTS

Following on from Joan of Arc, my spies tell me that Rainbow Arts have three interesting adventures in the pipeline. **LEGEND OF FAERGHAIL** is a fantasy role-playing game with eight different dungeons each with nearly 1200 rooms. All contain complete graphics as do the eighty or so monsters, along with realistic sampled sound effects. This **DUNGEON MASTER**-type game concerns a group of warriors who have been chosen by the defenders of a peaceful country to investigate why the Elven population has turned to war mongering. **OIL EMPIRE** has you as President of a multi-national oil company. You are able to take control of buying oil fields, drilling, purchasing stocks, in fact everything it takes to become successful. **ADVENTURES IN ARABIA** has you exploring a large Arab village in search of the treasure of the Sultan stolen from his palace. Your opponents possess apart from the obvious swords, a host of magical powers and jinns. Not for the faint hearted.

PROJECT FIRESTART FROM EA

Electronic Arts has announced the release of Project Firestart, a game that plays like a science fiction, horror and suspense movie, complete with movie animation, with close ups and fades and a musical score that increases tension and excitement. There is something wrong aboard the research vessel Prometheus, it no longer responds, Firestart, the project to produce strong durable labourers is out of control. Only you can clean up the mess.

OFFICIAL SECRETS LAUNCHED

A club set up to cater for all those who like "thought provoking" games has started life offering all new members an exclusive Magnetic Scrolls mini adventure called **MYTH**. This will not be available on general release, and is supplied free on taking out membership. Along with this, you get discounts on a wide selection of best selling titles, a club mag, a copy of Gnome ranger from level 9 (or an alternative for those who already have a copy) and a help line providing hits and tips. Membership costs £19.95, and details can be culled from John Trevillian on 0279 726541.

ADVENTURE LETTERS

I HAVE RECEIVED A NOTE FROM PETE AUSTIN FROM LEVEL 9 WHO HAS SOMETHING TO SAY REGARDING HINT SHEETS.

Dear Andy,

After sales service is regrettably rare in the computer games business. After all, to take a cynical view, why spend money to help people who have already bought a game? ... They are not going to buy second copies.

So perhaps it is not too surprising that Level 9 are still the only publishers that I know giving away comprehensive free cluesheets for adventure games; six years after we pioneered the idea. I have got quicker with practice, but it still costs several thousand pounds, in time and printing costs, to produce a new cluesheet. Some people might think this money wasted, but I prefer to think that extras such as free cluesheets are one reason why Level 9 are still around after all these years.

Best wishes, Peter Austin, Level 9, Bracknell.

Thanks for the note Pete, and I agree one hundred percent. If any one else has something to say on this matter, write in to me, and let's talk. AM.

Hail Andy,

Just a quick letter in reply to what I read in this month's CCI. My name is Jerry Mitchell and I completed Bards Tale III (screen dump of final screen enclosed). I can offer help with the following adventures Wizard's Crown, Eternal Dagger, Questron (both) Phantasie 1 and 2 Might and Magic, Shard of Spring and Pools of Radiance.

Jerry Mitchell, Australia.

Any help you can send me will be much appreciated Jerry, so I can pass on your good work to all your fellow adventurers. Unfortunately on the Bards Tale III front, well done on completing the game, but your letter arrived too late to get in on the prizes, as there were four others before you. But as I am such a generous person, I will see what I can do. AM.

Dear Andy,

Here are some hints for you;

WASTELAND ... Do not enter every tent. If the whole party is unconscious during a battle, better to reboot. Do not visit Las Vegas unless you are very strong. The first place to visit is the rail nomads camp, then go to Quartz.

ULTIMA V

The cities, keeps and shrines are exactly in the same locations as in Ultima IV. Do not steal food, fight to become rich and then buy it in Moonglow. In the private chambers of Lord British there is a magic carpet. Ask the owner of the Arms of Justice in Yew for the password of the resistance. The dungeons are sealed, and in every town there is someone who knows the word to open one of them. Someone in Empath Abbey has an item with which you can climb over the mountains. Without it you will not solve the game.

OLIVER NAUJOKS West germany

My sincere thanks Oliver for your tips. I am glad you liked our Prize for completing Bards, good luck with it. AM

PLEAS FOR HELP

ROD WHANNEL IS STUCK IN BARDS TALE II IN THE MAZE OF DREAD...RYAN HITCH HAS PROBLEMS WITH KEYS IN CIRCUS...M JONES IS IN A COMPLETE MESS WITH GUILD OF THIEVES...DAVID DICKINSON CANT

cont. on next page

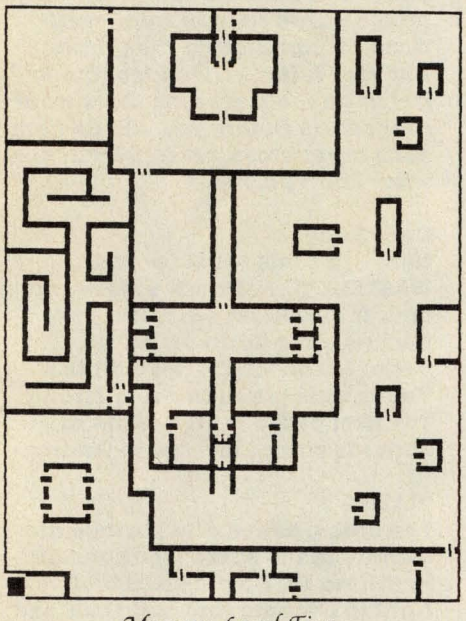
continued from page 55

KILL MANGAR IN BARD II...OYVIND BOLLINGMO CANT GET PAST THE GREEN ALIENS IN DRAGONWORLD.

AND NOW THE CONCLUDING EPISODE IN THE SOLUTION OF BARDS TALE. LAST MONTH WE LEFT OUR PARTY ASCENDING FROM LEVEL FOUR OF MANGARS TOWER...

MANGAR LEVEL FIVE

We are defeated at the last! The silver shapes were the key to entering the main chamber wherein resides a gloating Mangar. We are trapped like rats in a tiny room where even now the wizard sends his minions to storm the door.



Mangar, Level Five

But we are given wise counsel by Andreas, who advises us to write everything down and give it to Isli, who will be made invisible just long enough for her to escape this place. Yet it is evil magic, and everything we have accomplished will be rent from the fabric of time and destroyed, and as the spell loses power, so will Isli be consumed for ever. Hopefully there will be other brave adventurers who after reading of our experiences, will return to destroy Mangar once and for all.

I embrace my companions and taste the salt of Islis tears. Ghaklah has asked for my dagger- he has no wish to be captured alive. As Andreas prepares his spell, I can reflect that no man could wish to die in better company. They come...

SO ENDS MY SOLUTION TO BARDS TALE. STARTING NEXT MONTH WILL BE THE SOLUTION TO BARDS TALE II. STAY TUNED.

ADVENTURE REVIEWS

NEUROMANCER INTERPLAY3E.A. £14.99

Interplay sure have been busy lately, what with the Bards series, Wasteland and now Neuromancer, they have had their work cut out. This jolly little tale is set in Japan in the year 2017. The world is hooked into a vast government computer system and you take the role of a futuristic software pirate in Chiba City, where hacking is not just frowned upon but downright terminal. The adventure is based on the award winning sci-fi novel by William Gibson and faithfully follows the books' storyline. At the start, you find yourself in a bar just awake after a drunken bing. It seems that your friends have all disappeared seemingly somewhere into cyberspace and you really need to get going and try to find out what the hell is going on. The first problem is to try and retrieve your hardware and software tools essential in tapping into the public computer network which will give you some vital clues. You had to pawn your deck for cash when you arrived in the City, and you just can't remember where you left it. Remember, information is power in this world, and that is something you do not have a lot of at this time. Once you have located and retrieved your deck and software, you can begin the task of hacking in to the network all over the world for info. You still need money, as all use of network time is charged for and deducted from your credits automatically. All hardware and software can be upgraded at several locations in the city. Money is the key factor.

The adventure is depicted as large animated sprites that move around the town. When speech is required, you get the words formed inside speech bubbles above each character, from a list of sentences available. You can also buy skill chips in the city. These are planted directly into your brain and of course improve your various skills at the many different levels of technology needed to win the game. Once you are sorted out with your basic equipment, and have got some dosh, you then need to explore the possibilities of entering cyberspace. That is another nest of worms entirely. For this you need to acquire a cyberspace deck, which although is illegal for private use, certain dealers will sell one to you if you can afford it.

It may all sound complicated but believe me, Interplay have designed this adventure to be as smoothly as butter and everything is explained in the comprehensive manual that comes with the package. All in all another excellent release from the Interplay team.

POOLS OF RADIANCE SSI/US GOLD

POOL OF RADIANCE represents the first in a line of software created by SSI in collaboration with TSR- the producers of Advanced D&D role-playing system. It adheres faithfully to the AD&D game standards, using all the official monsters, items, spells and classes. Looking through the package you can't help but admire the attention to detail. The four double sided disks are each colour coded to avoid confusion, a nice touch that one, there is an adventurer's journal which contains maps and info about your quest and also info that you will discover during the game and told when to look it up. There is also a translation wheel which turns all the dwarvish words you come across into English, a quick reference guide, and a hefty manual.

All this is fine, but what about the game?. It is set in the fabled City of Phlan, which is sited on the northern shore of the Moonsea in the Forgotten Realms. The City has been overrun by monsters led by a mysterious leader. Your quest is to discover the identity of this evil force and rid Phlan of its scourge.

Most of the game is set in 3D and another nice touch is the initial tour of the City you get at the beginning to get acquainted to the place. After that though you are on your own, that is of course not counting the other 8 members of your party.

Combat can be either tactical or automatic, and each character has an individual portrait display. The game plays like a dream, and all credit to SSI for really getting to grips with the D&D system and turning it into a computer adventure of real note.

PERSONAL RATING...9

THATS IT FOR THIS MONTH. LOOK OUT NEXT TIME FOR A BUMPER HINTS SECTION.

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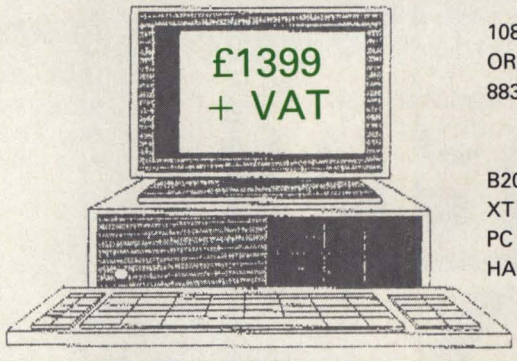

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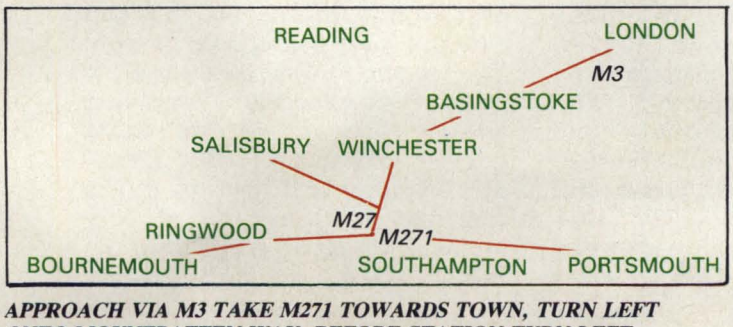
MEGALAND



APPROACH VIA M3 TAKE M271 TOWARDS TOWN, TURN LEFT ONTO MOUNTBATTEN WAY, BEFORE STATION TURN LEFT TOWARDS SHIRLY AFTER 50 yds LEFT INTO MILLBROOK RD MEGALAND IS 250yds ON THE LEFT, 3 MINS WALK FROM STATION.

Rainer Gellert takes to the air to test out six flying games.

FLIGHT ACE

FLIGHT Ace is yet another game compilation, containing six games and simulators based on flight. Included are Ace and ATF, two arcade type games, Spitfire 40 and Strike Force Harrier, two flight simulators, Tomahawk, a helicopter simulator, and Heathrow Traffic Control, an air traffic control type simulation.

Ace is a game classic. It was in the charts for a long time, reflecting its quality and addictiveness. The basic idea in Ace is to fly around the map, locating enemy ground forces, ships, and aircraft. The main screen gives the view out of the cockpit, with very few instruments. Flying the plane has been very much simplified, and landing is very easy. Air-to-air combat is also faster than in any other simulator. The game also boasts decent speech, air-to-air refueling, a rear camera, and a two joystick option for a co-pilot. An excellent game, if not a real simulator.

In 'Heathrow Air Traffic Control' the only screen is a representation of the actual radar screen controllers are associated with. As such, the game is not very appealing, with minimum sound and just a load of dots moving on the screen. As a simulation, it is very close to the real thing, and it does have a lot of emergencies thrown in. For diehard air traffic controllers only.

Spitfire 40 is, obviously, a WWII spitfire simulator with air-to-air combat option. The game lets pilots practice flying, practice combat, or engage in combat missions. After missions, promotions and medals are dished out. The view from the cockpit is basic, but doesn't contain any instruments, which take up a screen of their own. This means constant flipping between screens just to fly the plane normally. The screen change is also quite slow. Handling the plane is made worse by the fact that the graphics are really slow, so when turning or banking, the moving horizon take a few seconds to catch up, and is not smoothly done. The air-to-air combat is quite boring and not realistic. Dodging planes on your tail is also very much a matter of luck and not skill. Overall, a disappointingly slow and annoying simulation.

ATF is the other arcade type game. The view is given from behind the plane, so you can see the plane in front of you. The plane then flies over a rolling landscape, shooting enemy planes, or attacking enemy tanks, factories, ships, etc. Strategy is thrown in in the form of deciding which objectives to deal with first, as there is a constant battle

between your side and the enemy, going on around you. Destroying different targets will affect the enemy in different ways, i.e. attacking factories will slow the rate of enemy reinforcements. The enemy also strikes back at allied objectives, with similar results. Bar graphs are used to illustrate the state of the enemy's systems compared to the allies. The combat itself is quite boring, just requiring a quick shot at an enemy fighter of letting off a missile at a ground target. The strategy is well implemented, requiring some thought. The scrolling landscape is brilliantly done, as is the presentation of the game. Overall, a very enjoyable game.

"The combat has that nasty feeling of realism combined with danger, that makes this simulation a winner."

Strike Force Harrier is a full-blooded fight simulation of that unique plane, the Harrier. The unique aspect of the Harrier is the fact that it can hover, and therefore take off and land vertically, without a runway. The rotating nozzle jets which enable it to hover also enable it to take off/land on a very short runway, and it also gives the Harrier a considerable advantage in combat (remember the success of the Harrier in the Falklands?). The game itself gives the main view out of the cockpit in the way that it looks on the actual Harrier. It is possible to do all of the things that the Harrier can do in reality, which makes the simulation very realistic. The combat element is very good, putting the harrier in a ground support scenario as in real life. There are plenty of tanks to attack with bombs, and cannon or missiles for air-to-air combat. Missiles are also used by the enemy. The combat has that nasty feeling of realism combined with danger, that makes this simulation a winner.

Tomahawk is another proper simulation, this time of the American combat helicopter, the AH-64 Apache. The cockpit contains all of the instruments that are normally present in an helicopter, with a few combat bits, such as TADS, weapons, etc. The view outside the cockpit is of solid horizon and ground with wireframe trees, hills, and targets. The instrument panel is very comprehensive in a small space, making all of the instruments tiny and difficult to read at speed. The helicopter does handle very much like a real helicopter with auto-rotation, the shedding of a rotor blade when going too fast, and proper helicopter aerobatics possible. There are four different combat missions to choose from, and one flight training mission. It is possible to set day/night missions, cloudy/clear, selectable cloudbase, cross-winds and turbulance, and enemy skills. Combat itself is quite hard due to the lack of information about enemy positions (no radar in helicopter), but it is possible to do things like fly between trees and crash into tanks, etc. Overall, a very enjoyable flight and combat simulation.

This compilation fares better than most, with three out of the six games that I would actually buy. Those games are Ace, Strike Force Harrier, and Tomahawk. This compilation is certainly worth buying just to get those three excellent games, and is therefore excellent value for money.

R.G.

Value 95%

Archon

"The Archon Collection" contains two games; "Archon" and "Archon II: Adept". Each game "depicts the eternal struggle between Light and Darkness as a contest of action and strategy between opposing forces wrought from myth and legend"!!

What that basically means is that these are both games that you are going to have to use a little bit of the old grey matter to play!

Archon

Archon is played over two screens, the first is the "strategy screen" where the iconised playing pieces are set up, then manoeuvred into favourable positions. The second is the "battleground screen". If a player's piece is moved to a position on the Strategy screen that is already occupied by an opponent's piece, play moves to the Battleground screen, where the two fight for posession of the square.

The two sides are made up of a number of different characters, each with its own attributes. This means that although each side is balanced in strength and numbers, they are not identical and by careful play, a weak member of one side may overcome a stronger opponent.

The Light Side is headed by a Wizard and is made up of a variety of different human and non-human fighters, including Valkries, Unicorns, Knights and others.

Opposing them, the Sorceress of the Dark Side is able to call upon Basilisks, Trolls, Banshees and the like. Each of these has it's own style and speed of fighting; the Valkrie is a female warrior who can walk on air and carries an enchanted spear, whilst a Troll will grab anything that is handy and catapult it at it's foe.

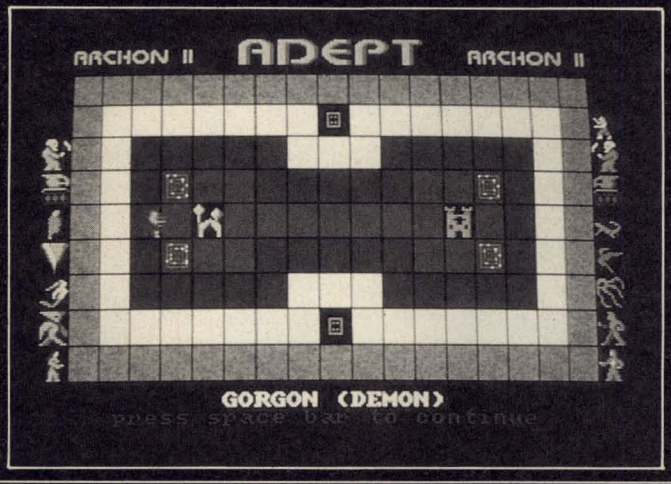
At the very start of play, there are a number of options available to you that effects the abilities of each side. The first is to select whether each side is Human, Computer or Cyborg controlled, (Cyborg control is where a Human makes the moves on the Strategy screen and the Computer controls the fighting), and the level of play, from Beginner to Advanced. To keep play fair, if the players' level differs, the higher-level player will be handicapped by having movements slowed-down. The greater the difference in level, the heavier the handicap!

Its then on to the Strategy screen where your icons are to be placed and moved. On this screen are five, flashing "Power Points", when your icons occupy all five points, you have won the game. Also on this screen are a number of "Luminance Square", which vary in brightness, from light to dark, throughout the game. These can be used very effectively, as a Light side icon is more difficult to defeat on a light square than when it is on a dark square, and vice-versa.

The idea is to move your icons around the Strategy screen to the most favourable positions, building up a strong side from which to attack your enemy, then, using a combination of strength and magic, wipe him out!

...on!

ELECTRONIC ARTS



GORGON (DEMON)

PHOENIX (FLY 5)

ARCHON II ADEPT

As is Archon, the aims and ideas of Adept are the same: To capture the power points and defeat the enemy.

Once again the forces of Light and dark are set to do battle but there are some major differences between Adept and Archon.

The start is the same, selecting who plays what and the levels, there are the same two screens, Strategy and Battleground, but the method of play and the Strategy screen have been changed.

The Strategy screen now consists of four, coloured bands, representing the four elements; Earth, Water, Air and Fire. There are now SIX power points which have to be won, plus each side has a Citadel and there are two black, neutral voids. The six power points are spread across the screen, two are the voids and the other four move from turn to turn.

The biggest change is that there are now FOUR Adepts per side and each fighter has to be conjured by one of the Adepts and placed on the board before it may be used. Couple that with the facts that each is specific to only one of the four elements, and that each Adept can only summon to the element that he is standing on, and you can see that the "strategy" element has been vastly improved.

In Archon there are two ways a side can be defeated, by running out of pieces or by the other side occupying all the power points. These are the same in Adept but with addition for each side of a level of "magical energy". This will ebb and flow during the course of the game, different spells use varying amounts of magical energy, but winning a fight can replenish it. Should your level fall to zero, then you lose!

The fighting in Adept is much the same as Archon, but there is the added complication of the elements. I once forgot this fact and tried to attack a very weak "fire" demon with a very strong piece from my side, overlooking the fact that my chosen piece was a "water" elemental. All my opponent had to do was avoid any contact until all my strength disappeared and I evaporated!

Both the games are pretty basic for sound and graphics, but this does not detract from them, purists of this type of game would not have it any other way. My first impression of both games was that they had simply been copied from another, inferior machine, possibly the 64. Having played them a considerable number of times, I can now see that to utilise all the amazing capabilities of the Amiga would radically change the actual game and they would become something entirely different.

"The Archon Collection" will not appeal to everyone but there is a growing band of followers for this type of game, and while it probably will not be the "mega-game" of 1989 I am sure that it will be around for some time to come.

N.S.

Graphics: 46%
Sound: 42%
Playability: 84%
Overall: 70%

Hints and Tips

Aren't you a lucky lot then? There's something for everyone this month in your regular bundle of tips, pokes, cheats, liars, scoundrels and other untrustworthy characters. There's stuff for the 64, C16 and Plus 4, Amiga and even the Vic 20, so get your finger out and get poking.

64

Thanks go to Mathew Moriarty for this first couple of listings.

Morpheus

Enter and RUN the listing for infinite energy.

```
10 FOR A=1024 TO 1089:READ B:POKE A,B:C=C+B:NEXT
2 IF C=6164 THEN SYS 1024
3 PRINT "ERROR IN DATA"
4 DATA 32, 86, 245, 169, 32, 141, 117, 3, 169, 21, 141, 118
5 DATA 3, 169, 4, 141, 119, 3, 76, 167, 2, 169, 35, 141
6 DATA 143, 8, 169, 48, 141, 91, 8, 169, 4, 141, 92, 8
7 DATA 76, 16, 8, 169, 0, 141, 48, 15, 169, 173, 141, 122
8 DATA 66, 169, 28, 141, 219, 70, 76, 16, 8
```

Impossible Mission II

Enter this for reduced sprite collision detection and infinite time.

```
1 FOR A=544 TO 619:READ B:C=C+B:POKE A,B:NEXT
2 IF C=8934 THEN SYS 544
3 PRINT "ERROR IN DATA"
4 DATA 32, 104, 255, 169, 11, 141, 208, 8, 169, 58, 141, 209
5 DATA 8, 76, 16, 8, 72, 77, 80, 169, 32, 141, 100, 178
6 DATA 141, 164, 190, 169, 78, 141, 101, 178, 141, 165, 190, 169
7 DATA 2, 141, 102, 178, 141, 166, 190, 76, 230, 159, 169, 0
8 DATA 141, 17, 49, 141, 23, 63, 141, 138, 102, 169, 173, 141
9 DATA 31, 63, 169, 234, 141, 18, 49, 169, 169, 141, 16, 49
10 DATA 238, 32, 208, 96
```

Ghosts'n'Goblins

Below is a list of every poke you could ever want for Chris Butler's best ever coin-op conversion (now out on the Encore budget label), brought to you by the combined talents of Jason Haymer and Anders Hogberg. Load and reset the game and take your pick from this lot, but don't stick too many in at once or you'll crash the computer.

POKE 2240,9 : raise time limit to nine minutes
POKE 3901,0 : infinite time
POKE 7086,0 : disable zombie collision detection
POKE 7086,1 : turn zombies into spitting plants
POKE 7086,11 : zombies disappear as soon as they come up
POKE 7086,16 : zombies become giants
POKE 7086,28 : zombies carry you
POKE 2275,252 : extra speed
POKE 2214,6 : a shield covering your back
Not forgetting to type:
SYS 2128 to restart the game.

I Ball 2

A fellow Action Replay user going by the code name of DA 3K has hacked a loophole in I Ball 2 giving infinite everything. The lack of a restart address means it's only for those of you with a cartridge with an auto-restart facility.
POKE 38895,234
POKE 38896,234
POKE 46254,234
POKE 46255,234
For the infinite bombs to work you first need to pick one up and survive that screen.

Vegas Jackpot

I included a poke for Vegas Jackpot in the January issue minus a restart address. Clive Dunn has done the decent thing and come up with the goods, which are as follows:
POKE 20014,174
SYS 19456

C16/Plus 4

C16 and Plus 4 cheats are back in a big way this month, thanks to M Vainola and J Hadlow.

Legionaire

Enter the monitor and type:
M 28B0
2C (in the first line)
G2824 to restart with infinite lives.

Runner

Reset and enter:
POKE 8787,234
POKE 8788,234
POKE 8789,234 for infinite fuel
POKE 8991,234
POKE8992,234
POKE 8993,234 for infinite lives
POKE 8838,96 for invincibility
SYS 4120

Laser Zone

Reset and ...
POKE 5672,234
POKE 5673,234
POKE 5674,234 for infinite electros
POKE 5426,100 for infinite lives
SYS 4112

Time Slip

Reset and enter:
POKE 5108,96
SYS 4157 to restart with infinite lives

Booty

Enter the monitor before typing:
M 1140 (change **BS** to **B4** to get rid of pirates)
M 16DB (change **B9** to **B7** to get rid of doors)
X (RETURN) **SYS 4120**

Exorcist

Once into the monitor, type:
M 2484
68 in the first line for infinite energy
G 3B00 to run the game

Blagger

Reset and enter:
POKE 13066,48 for extra lives
SYS 9242 to run the game

Saboteur Plus 4 version

Reset and enter:
POKE 30236,0 for infinite time
POKE 28891,96 for a faster game
SYS 30720 restarts

Dirty Den

Press RESET/RUN STOP and type:
X (RETURN)
POKE 6096,234
POKE 6097,234
POKE 6098,234 for infinite lives
POKE 6124,96 for invincibility
SYS 4112

Auriga
Break into the monitor and type:
M 2C20 and change **CE** to **2C**
G1466

Guzzler
In the monitor, enter:
M 2341 and put **2C** in the first line
G3690 to restart

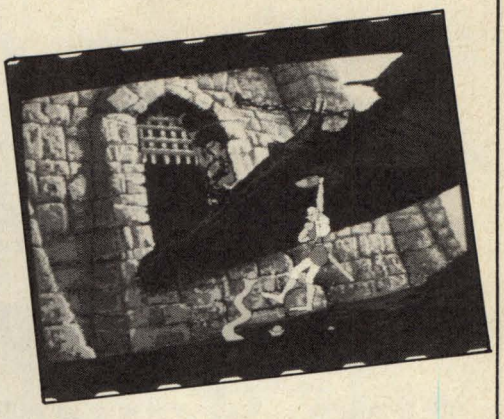
Tycoon Tex
Reset and type:
POKE 9376,234
POKE 9377,234 for infinite lives
POKE 10966,X (X=number of lives)
POKE 7833,96 for invisibility and invincibility
POKE 7895,96 stops you falling down holes

Jet Set Willy
Enter the monitor and type:

G 2A00

Commando
Enter the monitor and type:

correct word. When the game starts press the * key on the numeric keyboard to enter the hacker screen. By changing certain numbers you can customize the game. Press escape to restart.
23 to 02 = large cargo bay
24 to 01 = ECM system
32 to 01 = Docking computer
28 to 01 = Beam laser
26 to 01 = Pulse laser
2C to 01 = Escape capsule
3C to 01 = ECM jammer
2F to 01 = Energy bomb
3F to 01 = Cloaking device?
34 to 03 = Galactic hyperdrive
38 to 01 = Military lasers
36 to 01 = Mining lasers
84 to 01 = Alien items
83 to 01 = Gem stones
79 to 01 = Platinum
75 to 01 = Gold
88 to 01 = Unhappy refugees?
4C to 01 = Slaves
5C to 01 = Computers
72 to 01 = Minerals
6C to 01 = Furs
67 to 01 = Alloys



tap the stick up and you should climb back through the hole and run through the castle entrance.
The Potion Room
Easy really, just be ready to tap the stick to the right when the door flashes.
The Crumbling Ledge
As the slab flashes, tap either left or right depending on which direction you are walking.

T'S HINTS

Hellgate
Enter the monitor and type:
2DC6 FF FF
G 2000

VIC 20 (honest!)

Matrix
Reset and type:
POKE 13715,201 for infinite lives
SYS 8192 to restart

Hellgate
Reset and type:
POKE 11429,128 for infinite lives
SYS 8192 to restart

Shamus
Reset and type:
POKE 9327,183 for infinite lives
SYS 8192 to restart

Amiga

Elite
Andrew McGarrigle is responsible for this tasty little hack. When the game asks you for the password from the manual, type **SARA**, followed by the

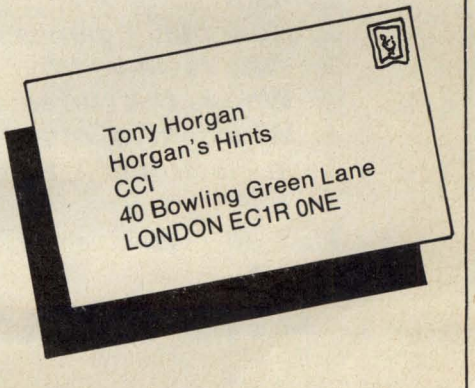
8C to 01 = Thargoid documents?
50 to 01 = Wines
49 to 01 = Radioactives
63 to 01 = Machinery
54 to 01 = Narcotics
47 to 01 = Textiles
40 to 01 = Food

Aaargh!
Simon Knight advises Aargh players battling for the egg to hold down the fire button and push the joystick left if you're the ogre or right for the lizard, keeping it in that position until you win.

Dragon's Lair
Just like the arcade machine, Dragon's Lair can be very frustrating if you don's know what you're supposed to be doing. Here are some tips for getting past the first few stages.
The Bridge
There's no way of dodging the hole so don't bother trying to jump over it. Once you've fallen through, wait for the tentacles to lunge at you and press fire to draw your sword (don't worry if he's a bit slow to react). He always misses, but just before he gets the chance to swing a second time,

Next month I'll include a cheat mode for Amiga Outrun (I would have put it in this issue if I could remember how to activate it!)

I've had a request for a poke for Paradroid, and I'd also be interested in a cheat for Rack It's Slayer. If you can help, send your solutions in to me at this address:



How about a Night On The Town? See "Chess" and come Stomping at the Savoy!

THE Archon Collection, released by Electronic Arts, which we have reviewed in this CCI is already becoming a classic in computer games. It takes a chess-like theme and turns it into something really special and different. "Archon" will appeal to everyone who has played chess and probably to most everyone else even if they haven't!

Electronic Arts' all-PR-powerful Lesley ("When I said I had Turkey for Xmas, I meant the whole country!") has a taste for luxury and thinks you might have too. So Electronic Arts has given CCI two tickets for the hit musical "Chess" in London's West End and a night on the town for two. That means a dinner and a night for two at London's super-luxurious and famous Savoy Hotel. Frank Sinatra stays there and takes fifteen rooms. It must be because the baths in the Savoy Hotel rooms fill in just twelve seconds! (Or so Lesley assures us!) Also included is travel from anywhere in the U.K.

All you have to do is tell us:

1. How many squares does the conventional chessboard contain?
2. How many games does the Archon Collection contain?
3. Who reviewed the Archon Collection in the CCI?
4. Who is the current world chess champion?
5. Which two other chess-influenced computer games have Electronic Arts released?

First all correct entry drawn by the Competition Controller Teresa

Answers on a postcard please by April 15th, 1989 to CCI/ARCHON COMP, 40 Bowling Green Lane, London EC1R 0NE.

C64

CRISP

CIRCUS GAMES

Tynesoft

THESE multi-event sport simulations are becoming something of a speciality for Tynesoft. So far they have not matched the extremely high standards set by World Games and California Games from Epyx, but the events in the imaginative Circus Games come as a welcome break from all those Olympic joystick-waggiers.

The competition is played over four events: the tight-rope, trick horse riding, trapeze and tiger training. Once you have got through the poorly-designed name entry screen you can opt whether to practice single events or enter a full competition.

Let's start with the tight-rope walking. After your on-screen acrobat has made his long slow climb to the platform high above the ring you can begin. As you inch your way along the wire you start leaning out to one side, so pushing the stick left or right corrects your balance. To score points you need to perform somersaults, spins and handstands. A bird's eye view on the right shows which way you are leaning, but you still need to keep an eye on the side view to pull off the tricks. The result is a rather tedious and frustrating little game.

Trick horse riding comes next. Although it looks a lot different to the tight-rope it plays in a similar way. You ride a large, well-animated horse, leaping from side to side and performing yet more somersaults and mid-air spins. All the time you have to watch the balance-o-meter at the top of the screen. The bigger graphics give it the edge over the tight-rope.

It's back up the ladder for the trapeze. A couple of swings do as their name suggests, while you attempt to fly through the air with the greatest of ease, performing (you guessed it) more mid-air spins. The animation is a bit slow but looks quite realistic. It's pleasant sub-game but a shade eventless.

We enter the tiger's cage for the final stage of the game. Using your whip you have to guide the cats over and through a series of obstacles. A tiger's head cursor is used to aim your whip, but coaxing the tigers around the obstacles is far from easy as they seem to totally ignore your commands most of the time.

A few typical circus tunes play throughout the game and really get to you after a bit. As for the sound effects, the few that do make themselves heard could hardly be more basic.

A game based around circus acts has a lot going for it, but Circus Games doesn't take full advantage of the idea. The four events could have been ex- tended by two or three for more variety. What's there is enjoyable enough and the graphics are interesting with a few friends, and it deserves credit for its unusual events.

Graphics: 68%
Sound: 29%
Playability: 66%
Overall: 64%
Rating: CRISP
Price: £9.95 (c)

AMIGA

The improved graphics on the Amiga version make Circus Games more immediately attractive but in general it plays identically. The exception is the tight-rope, in which you can tell the direction you need to lean from the main side-on view. This greatly improves the event as you no longer have to monitor two separate areas of the screen. The music is almost identical to the 64 version but there are a few digitised sound effects to beef up the tiger taming and tight-rope sections.

T.H.

Graphics: 70%
Sound: 52%
Playability: 70%
Overall: 70%
Rating: CRISP
Price: £19.95

BARGAIN BUCKET

It's time again for a rummage through the overflowing bargain bucket of budget games. (More and more these days appearing at £2.99.) As always it's mixed but there are genuine bargains to be had if you know what to look for...

Jocky Wilson's Darts *(Zeppelin)*

ZEPPELIN'S attempt to simulate is to me the most boring TV sport after Cricket breaks no new ground. Just aiming a sight over the board would obviously be far too easy, so a wobbly arm is simulated by the swerving motion of the dart. Move it over your target and press the button to throw. Gripping stuff eh? (Don't get over excited, please!)

You get the choice of playing "round the clock", in a tournament or against a friend. Whichever rules you play there's just as little to do, simply aim a throw. Definitely, one for darts enthusiasts only.

Overall: 41%

Camelot Warriors *(Mastertronic)*

ANYONE in the mood for a bit of exploration could do worse than splash out on Camelot Warriors. You step into the sweaty armour of a brave young knight on a quest to retrieve four magical items from around the kingdom. The multi-screen platform set-up is old hat but you can't have everything for under three quid.

The graphics vary, some of the

nasties are pretty feeble but others like the canaries are very well animated. There's a bit more to Camelot Warriors than meets the eye, and the four different lands should keep you adventuring for longer than the average cheapy. Nothing amazing but well worth a shot at the price.

Overall: 77%

Kane II *(Mastertronic)*

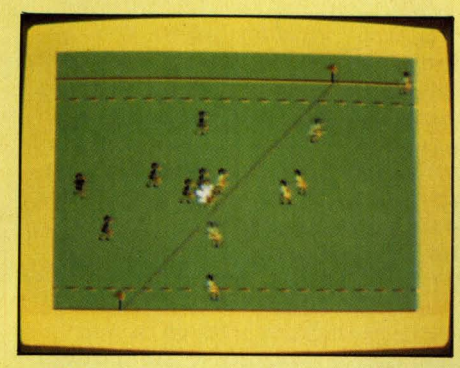
THERE was a time when budget games were all utter rubbish. Kane was one of the first games to turn the tide, and in its day was highly rated. Kane II is a rehash of the first, but instead of ironing out the original game's faults, its creators have astonishingly magnified them.

A couple of excellently animated sprites brought over from Kane give it a touch of class. Sadly the fort shoot-out is near identical to its forerunner and all the horseback scenes have gained is a bit more difficulty. In '89 Kane II doesn't quite cut it.

Overall: 57%

International Rugby Simulator *(Codemasters)*

RUGBY isn't a sport you see played on computer screens very often, and Codemasters' attempt explains why. According to the inlay it features touchbacks, line-outs, drop-kicks, real tackling, scrum downs and throw-ins. Forget all that, what you really get is a confused



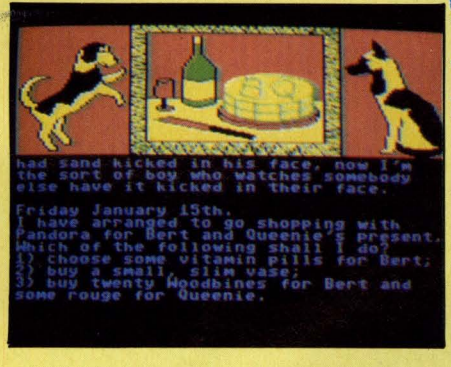
rabble of lame stick men running wild on a scrolling pitch chasing a bloated rugby ball.

As you can imagine, all this mayhem leads to a totally unplayable game. Codemasters obviously realised this and have included an ecstatic quote from co-founder of the company David Darling. Don't give it a second thought. If this is the level Codemasters are achieving, it is soon going to leave the reputation they once had in tatters. What about a simulation of a good software house?

Overall: 17%

The Growing Pains of Adrian Mole *(Ricochet)*

GROWING Pains is the game of the follow up to The Secret Diary of Adrian Mole. Despite having been programmed by Level 9 it's not strictly an adventure game, more an interactive story. It takes you through the book, giving you a chance to alter the flow of the plot at key points.

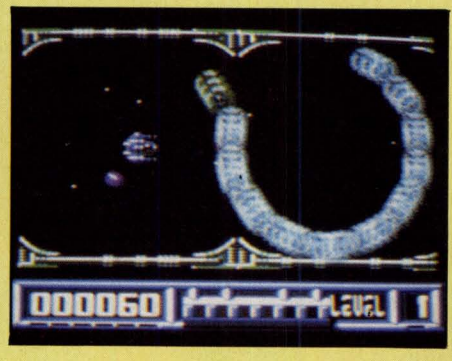

had sand kicked in his face, now I'm the sort of boy who watches somebody else have it kicked in their face.
Friday January 15th.
I have arranged to go shopping with Pandora for Bert and Queenie's present. Which of the following shall I do?
1) choose some vitamin pills for Bert;
2) buy a small, slim vase;
3) buy twenty Woodbines for Bert and some rouge for Queenie.

The game's main problem is the very limited player involvement. Choices are thrown up with too little frequency, and even then they often all lead to the same outcome! You'd be a lot better off just buying the book instead.

Overall: 38%

Slayer *(Rack It)*

SLAYER is another right to left scrolling shoot 'em up bearing more than a few similarities to IO, R-Type and the like, but makes up for its unoriginality with a degree of technical polish rarely seen in a budget games.



All the graphics are perfectly smooth and the aliens' animation is just as fluid. Extra weapons come in the form of outriders and smart bombs, but even armed to the teeth you'll find it extremely tough going. In fact if there's one criticism of the game it's the high difficulty level (a prime candidate for a good poking). Definitely the best budget release of the moment.

Overall: 89%

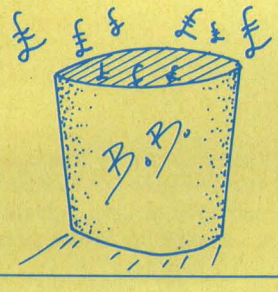
Chopper Commander *(Zeppelin)*

THE horizontally-scrolling slaughter continues with Chopper Command. Enemy aircraft swarm the skies above the continents under attack from the Evil Empire. They're no match for such a skilled pilot as you and begin dropping like flies the moment you open fire. Once everyone's been blown up, all that remains is to dish out some similar treatment to the mothership.

Nothing too impressive in the visuals, and the sound and gameplay are on an equally forgettable plane. Just another run of the mill budget shoot'em up.

Overall: 57%

T.H.



***Top Budget Game* – Slayer from Rack It (well done, Andrew Hewson)**

Bob Collyer zooms into some desktop aviation with:

F-19 STEALTH

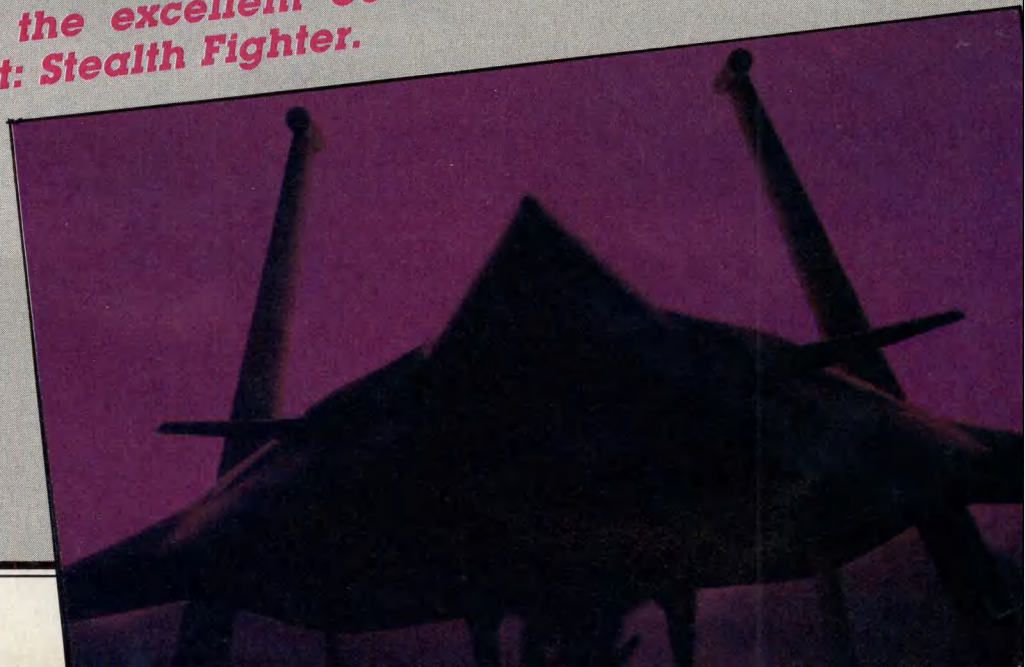
the PC version of the excellent C64/128 War Flight Simulation. Project: Stealth Fighter.

Microprose's fame and reputation have come from military flight simulators, especially the classic F-15 Strike Eagle, first to grace the screens of the C64 in 1984. Since then they have produced many novel and popular products such as Silent Service, Pirates, Airborne Ranger, Gunship and Red Storm Rising.

F-19 follows the gameplay and style of Gunship and Red Storm *(if you can call these simulations GAMES!)*. It seems fitting that the creators of the best military strategic simulators should have chosen the very latest sophisticated aricraft to challenge the programming power of the team at Microprose. The F-19 is an American fighting plane, still so secret that until recently the U.S.A. government even refused to discuss it. Black, formidable and sinister looking, its enough to make your hair stand on end! For the enemy it poses many hair-raising, problems, the use of the very latest in space age technology, the F-19 is virtually undetectable to radar or infra-red systems. A large quantity of radar absorbent material panels have been used in the construction of the plane along with heat-resistent leading edges and exhausts and all help to make the Stealth Fighter nearly invisible to the enemy. The plane is the best there is so let's see if Microprose have given us the best simulator there is.

F-19 is easy to learn but hard to master. It includes a wide choice of realism factors that ease novice pilots into the air. You can select "training" missions where enemy weapons have no effect, or a "no crash" flight mode that protects you from the inevitable. There is a massive 196 page manual to accompany the program. I liked the way you were given three options of learning to fly. The first was called the "try and see method" (not for the faint hearted) where you were offered the opportunity to dive in and try to find out things as you went along referring to the manual or keyboard overlay when you needed to. I don't recommend this choice as there are more buttons and knobs on this simulator than in Michael Jackson's recording studio.

"The use of the very latest in space age technology, the F-19 is virtually undetectable to radar or infra-red systems."



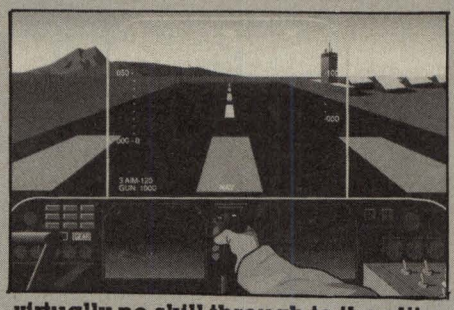
FIGHTER

There's the correct "study method", reading and learning all the operating instructions before attempting to fly it, (a bit boring if you want immediate action) or the "quickstart method", using this method allows you to follow step by step instructions through your first flight, explaining as you go. through a full tutorial program so that you are guided through situations to simplify the learning process.

"It is worth noting that many who have gone before you were killed in action, so watch out!"

Those of you who are familiar with "Gunship" will recognise the way Microprose have gone about putting together different scenarios. Once up and running F-19 uses the now familiar identification quiz where you are given the image of a plane to identify; the manual has a full dossier on the 24 possible images. The opening screen asks you for your name so that you can log onto the pilot roster. It is here that a running total of your missions and scores, honours and rank will be held on file. It is worth noting that many who have gone before you were killed in action, so watch out! After you have enlisted you are assigned to a mission, you have the ability to change this to make it easier or more difficult. The more confident you get the harder the missions you will wish to accept. The rewards are high. From the Airforce Training Ribbon to the Congressional Medal of Honour.

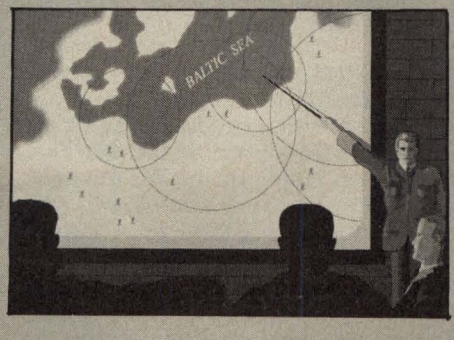
You can choose from four regions in the world for your assignment. Libya, Persian Gulf, North Cape, or Central Europe. The Persian Gulf is no good for a sun tan and the North Cape is not the place for a skiing holiday. Different levels of conflict can be chosen. From cold war situations where you are asked to fly clandestine missions. Flying in without being detected to your target, destroy or simply photographing it, then steal away before the enemy radar operators have had a chance to finish eating their bacon sandwiches. Limited or conventional war will allow you to get your itchy finger on the fire button, blasting the bums off your enemies. If you find the opposition too good, the clever people at Microprose will allow you to specify the opponents talents, from



virtually no skill through to the elite, who will try every trick in the book to get you on the "Killed in action" roll.

The program is crammed onto three 5¼" disks or two 3½" disks. This shows the amount of detail that has gone into producing this situation. The graphic quality and speed at which the program runs is automatically selected for that of your machine. You do need at least 384K RAM, the simulator will run on a Hercules Mono system but is glorious in either 4 or 16 colours. Smooth scrolling is important on any simulator and F19 has nothing to hide in that department. Ground detail and sound levels are all variable as is the response to joystick or keyboard presses.

The normal screen display during flight lets you see out the cockpit through a "HUD" (head up display). The heading, speed,



altitude and numerous other important readouts are put up on the HUD. Three HUD modes assist with navigation, air to air combat or air to ground combat. On these screens there are projected enemy installations, aircraft or vessels as you come across them. The cockpit view has two other "screens", these are your own radar screen and the other is a computer with camera views from front, rear and side cameras. As you approach a target your front camera will give you a clearer picture of it etc.

If you are like me and sneak in a few minutes "flying" into your lunch break at work, then there's a neat gadget to hide your display from the boss's eyes should he come in unexpected. Microprose seem to have thought of about everything to make F19 as easy or as difficult as you would like. F19 includes no fewer than eleven different viewing perspectives, five from within the cockpit, and six more from outside the aircraft. These include the innovative "Tactical View" that keeps both your aircraft and its target in view at all times. There's even a camera view possible from the missiles that you launch as they fly towards their target. With all these cameras you will see roads, rivers, bridges, towns, cities, fields, airstrips, oil well, warships and much much more.

"Wild" Bill Stealey, once Top Gun, had a "Major" part to play in the design and development of F-19 Stealth Fighter. His love for flying and daring to win has given us all the opportunity to experience for ourselves the immense enjoyment that "desk top aviation" can bring. Thanks Bill.

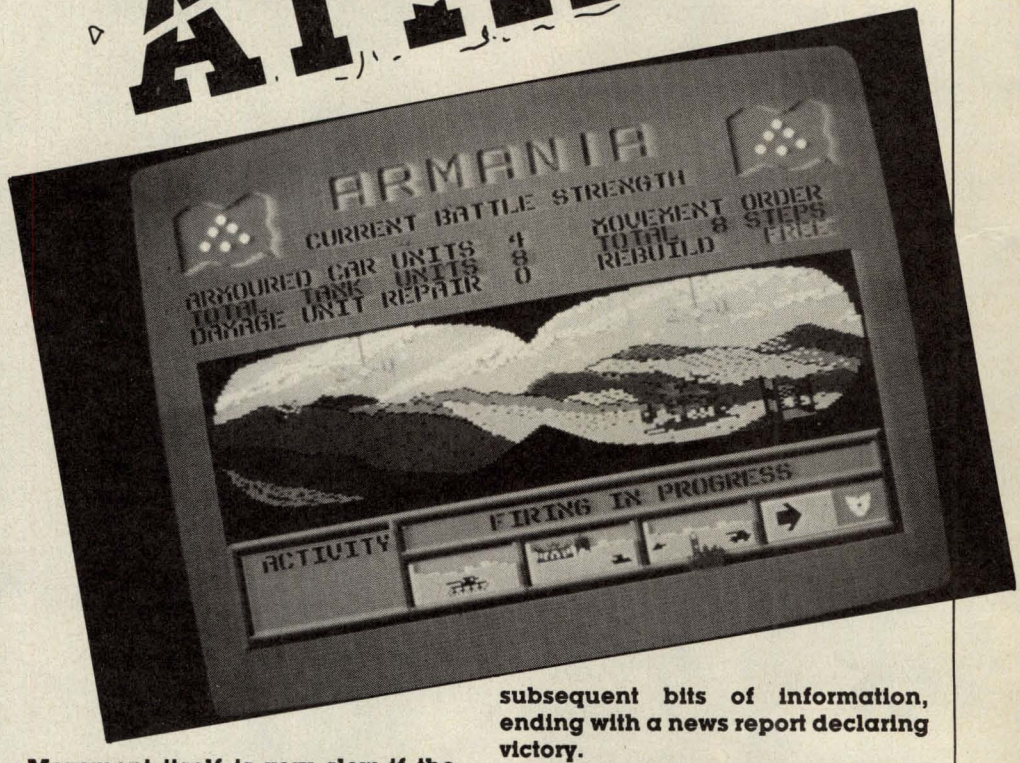
BC

Graphics: 90%
Sound: 20%
Playability: 90%
Overall: 89%
Rating: MEGA

C64

IFFY

TANK ATTACK



Tankattack is one of those games that tries to be fresh and original, and fails. The game is loosely based on conventional wargames, in that the players control a 'division' of tanks and armoured cars, and then fight it out trying to capture the enemies HQ. Enclosed in the package is the manual, a fairly sturdy gameboard, and a bag containing lots of little plastic tanks and armoured cars. There are three different types of tank and two different types of armoured cars. All the tanks and cars look the same, except for the number of notches on the back. The idea is that if your tanks face your opponents, then they do not know how strong a particular tank is, while you can tell at a glance.

The computer program is supposed to enhance the game, which could quite easily be played without any hardware. The game can be played with 2-4 players, as there are 4 countries on the map. For some reason, the same two countries are always allied against the other two countries, which has been forced upon the creators by a very small map. The two allied countries are also mirror images of their enemies, putting the map about one notch above a chess board.

The computer program runs the game by doing things like telling which players turn is next, etc. The most exciting thing the computer does is print a news report after everybody has had their turns, which includes battle news, political news (clues to troop morale!??), and a weather report. The only useful bit is the weather report, which gives an indication of how slow the next turn will be. The news report is not very varied, and is usually greeted by yawns after the second turn. The computer then moves on to individual player turns, giving the player the option of moving units of resolving combat. Movement itself is very slow if the original rules are followed.

After movement, the combat icon can be selected. The distance between the two fighting units is then entered, along with their strengths. The players are then 'treated' to see the 'live' fighting. The fighting route is so bad that it is an insult to modern games. All you see is a boring and basic landscape (always the same) with a tank or armoured car in the distance. Another tank then trundles on (with awful sound effects) as a basic sprite, stops, and fires once at the enemy. The enemy, not being stupid, fires once back. The shell lands, creating a small crater or some scrap iron. The first time I saw it I fell asleep, and at exactly the same each time, except for the end result. The players sometimes get the chance to put their tank into a repair depot or have it rebuilt.

To end the game, the HQ icon is selected. The computer then shows the same routine, but with a building being attacked, and a few subsequent bits of information, ending with a news report declaring victory.

It is very hard trying to work out to whom Tankattack is marketed. It is nowhere near serious wargame standards, even if it were left as a simple boardgame (which it essentially is). The computer itself cannot play the game, so more than one person is needed to play. There are only 8 tanks and 4 armoured cars per player, and the map is really too small to cope with that. All the computer actually does is throw the dice and look up the results on a few combat tables. The game itself is very simple to play and as such, it is suitable for all ages. But I cannot see anyone playing this game more than twice, the first time for the novelty, the second time just to check how bad it is. There are plenty of better board games or computer games which you get for your money, and the only fun that I, or any of my friends had out of this game was in comparing it with its press release.

R.G.

Graphics 35%
Sound 25%
Playability 5%
Value 5%
Rating: Iffy
Price: £9.99 (c)

WIN A SLAYER PLAYER!

IN our coverage of budget games this month, Bargain Bucket, we picked out one game above the rest — Rack IT'S exciting SLAYER. Though it's a budget game, it seems to have that extra something that sorts out the top games from the also rans. It is that explosive touch of quality that longtime King of the Shoot 'em Ups, Andrew Hewson always gets into the games his company releases. (The biggest mystery is how can such a great creator of smooth-scrolling smash hits have started on the Spectrum?!)

Andrew has had lots of successes in home computer games and some of them are regarded as shoot 'em up classics. Slayer, though it has been released under the Hewson budget label Rack It, lives up to the Hewson reputation as being fast, furious, full of action and nicely addiction-forming.

The delicious Toni, PR Princess of Hewson (has she got the sexiest voice in software?), has given CCI a really terrific Personal Stereo radio and cassette player for the winner of a special Slayer Player Competition. The 25 runners up will get copies of Slayer.

All you have to do is answer the following questions:

1. What is the name of the daring young knight in Dragon's Lair?
2. What is a dirk? (Not the guy's name!)
3. What is the object of the hero's quest?
4. Which team programmed Dragon's Lair on the Amiga?
5. With what did the coin-op replace conventional bit-mapped graphics?

First all correct entry out of the Comp. sack gets the Slayer Player
Answers on a postcard please to CCI, Slayer Comp, 40 Bowling Green Lane, London EC1R ONE
They must reach us by April 15th, 1989

Charts

Chart Chattering Events

Last month we saw loads of new entries hit the Charts. This month the flood has slowed to a trickle. Only six across the three Charts to disturb the already big sellers. Of course, with the end-of-year charge over, it's really a case of what goes on catching the fancy of the "Granny Money" spenders. Those lucky pressie-getters who kept their cash for the January sales and the mark downs even of software. But we do have a new Number One of the 64s — Ocean's chartbursting Operation Wolf has made the extra heave and displaced friendly rival U.S. Gold's Thunderblade (Not, Thunderblades, as our typesetter put last month!). Another and far less hyped up Ocean release. Robocop, comes stalking in, no doubt on the back of the biggest video success in the U.K. currently, the video of same name.

On the Amiga front, Ocean's success takes for the first time the top spot of both 64 and Amiga Charts at the same time is, well simultaneously at least quite an achievement. Mirrorsoft's U.S. import the well received Dungeaon Master has shot in at Two. Thunderblade is a new entry there too but watch out for another Mirrorsoft Amiga game Falcon. It is, to quote a Mirrorsoft source, "flying off the shelves". Well a flight sim would wouldn't it?

Very little change for the cheapos but Commando pushes Ace II off the Chart-Topping Spot. Watch out for Rack It's Slayer. Well, we like it! So go buy it and prove us right!

GAME TITLE	COMPANY	PRICE	RATING
1. Operation Wall	Ocean	£8.95	Crisp
2. Robocop	Ocean	£9.95	Mega ★
3. Thunderblade	U.S. Gold	£9.99	Mega
4. Double Dragon	Melbourne House	£9.95	Iffy
5. Batman	Ocean	£9.95	Mega
6. Afterburner	Mediagenic	£9.95	T.B.A. ★
7. Emlyn Hughes	Audiogenic	£9.95	Awesome
8. R. Type	Electric Dreams	£9.99	Crisp
9. Microprose Soccer	Microprose	£14.95	Mega
10. Barbarian II	Palace	£9.95	Mega
Amiga			
1. Operation Wolf	Ocean	£24.95	★
2. Dungeon Master	Mirrorsoft	£29.95	★
3. Thunderblade	U.S. Gold	£24.95	★
4. Rocker Ranger	Cinemaware	£29.99	
5. Pacmania	Grandslam	£19.95	
Budget			
1. Commando	Encore		
2. ACE II	Cascade		
3. Gauntlet	Kixx		
4. European 5-a-side	Firebird ★		
5. Joe Blade II	Kixx		

★ NEW ENTRY

MEANWHILE...

C64

CRISP

SUPERMAN

Tynesoft

WHILE Superman is currently enjoying a spell in his own coin-op, Tynesoft have released their own interpretation of The Man of Steel.

The game takes a typical day in the life of newspaper reporter Clark Kent, alias Superman. Seemingly natural disasters are occurring all too frequently. It turns out that some evil madman is behind it all and must be stopped before his foul deeds defy even the might of Superman.

A 3D shoot 'em up begins the game. In a similar style to Space Harrier, Superman flies across a green checked field heading towards the Professor's lab. Airborne aliens are released from pods and home in on the superhero. These can be blown up with your laser-sight, aimed by a small Superman logo. It's nothing new but the small Superman sprite looks good with his cape flapping in the wind.

Next you find yourself escorting a spaceship through an asteroid belt. As the asteroids rain down on your ship you use your zappo-vision to keep it in one piece, shooting down the projectiles before they reach it.

Once you reach the space lab you break your way into a heavily guarded corridor. This horizontally scrolling death trap is riddled with defence droids. Get caught in a flurry of their missiles and you could well find yourself knocked right back to the start. Make it to the end and a rehash of the asteroid level follows.

Soon enough you track down the evil madman to a vast space station. A head-to-head confrontation follows with Superman dwarfed by the immense size of the space station. While dodging the missile-spewing gun turrets and hidden alien launch pads, your laser-emitting eyes are put to use in the destruction of the mothership.

A version of the music from the Superman films plays between the levels and the sound effects are generally up to scratch.

A short while later you should have saved the World and you can go back and write up the story for the Daily Planet. Between each multi-loaded stage a comic book fills you in on the latest developments in the story. These and the other additional static screens are all very nicely drawn, more so than the in-game graphics which are nevertheless well-designed in most sections.

The differing gamestyles make for a varied package. Most of the levels are easy to pick up and have been well thought out. Three skill levels are provided, and naturally you would choose to begin on the easiest. But this is a bit of a shame, as once all the screens have been seen a fair deal of the game's addictive pull goes out the window. Still, the Superman element has been used to good effect, so give it a look if you like the sound of it.

Graphics: 79%
Sound: 77%
Playability: 71%
Overall: 72%
Rating: CRISP
Price: £9.95 (c)

DRAG LA

Taking all its graphics from a video disk, the Dragon's Lair coin-op would seem almost an impossible game to convert to a computer even such as the Amiga. However unbelievable it may seem, Readysoft have produced an almost perfect replica, but is a perfect replica of an imperfect original good enough

"To make matters more uncomfortable, a mass of writhing tentacles spring from the watery depths, wrap themselves around you and attempt to pull you under."

day, but unfortunately that's about all they did. The trouble with all of them was the low degree of player interaction. Dragon's Lair had the most stunning visuals of any I saw, but was also one that greatly emphasised the shortcomings of the system. And while everyone was knockedout by the graphical

A few years ago the trend in the arcades was to do away with conventional bit-mapped graphics and replace them with interactive video sequences. These were guaranteed to turn heads in their

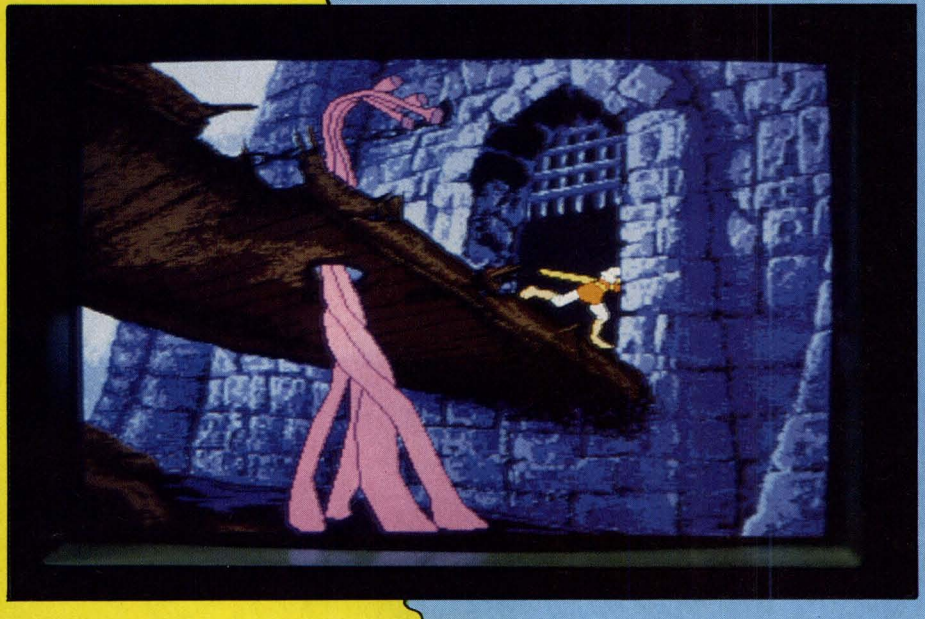
delights, the control was so poorly achieved that after two or three expensive tries, players generally stalked off to do something more managable

In Dragon's Lair a daring young knight called Dirk sets out on an adventure to save a princess held prisoner in a magical castle. You begin on the rickety drawbridge of the castle. Casually striding into the screen you suddenly fall through a rotten plank and find yourself dangling just above the moat. To make matters more uncomfortable, a mass of writhing tentacles spring from the watery depths, wrap themselves around you and attempt to pull you under. So, your first problem is how to avoid a slimy death beneath the moat.

GON'S IR

Readysoft

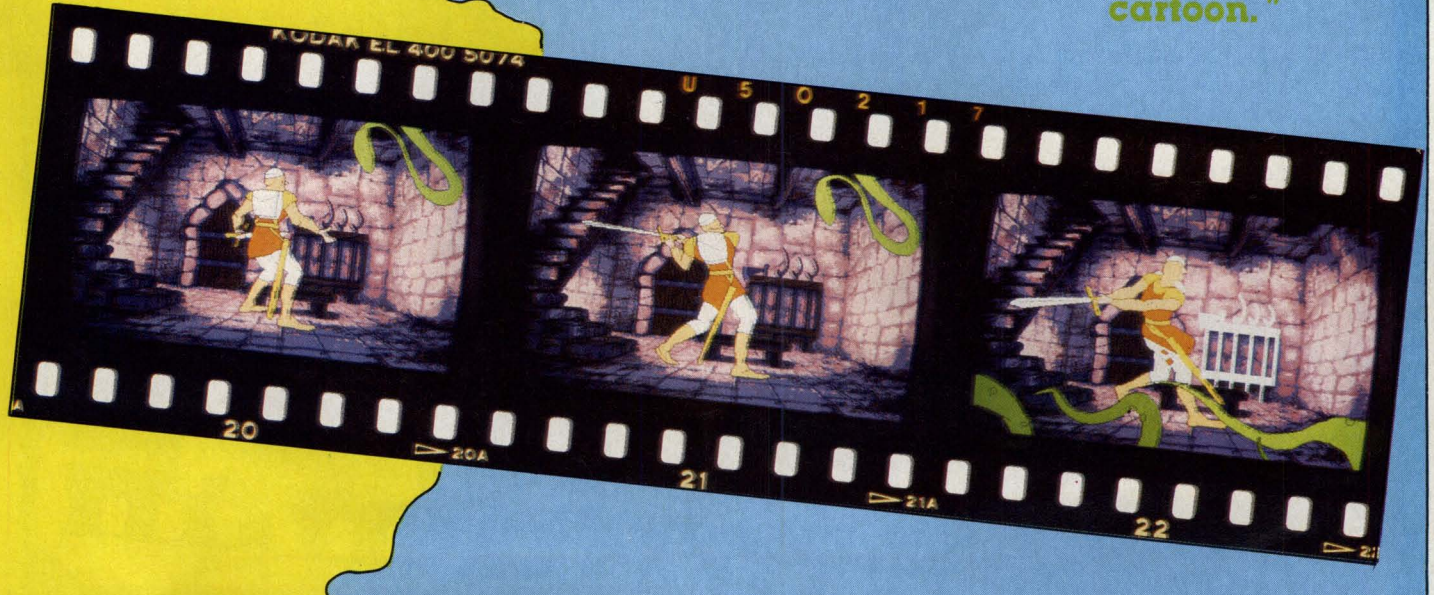
Jumping across the whole would seem a likely solution, but try as you may, Dirk stumbles through and down every time! The trick is to fall through, swipe at the moat monster and clamber back up through the hole before they get a chance to grab you.



All this is achieved by a single tap of the fire button followed by a forward tap on the stick. Any other stick movements are completely ignored, and unless you make your moves at the precise moment dictated by the computer, they too are also ignored. As you can imagine, this makes for an infuriating start to the game. Once you figure that out things starts to get a bit more helpful. But this frustration level is not so different from that of the original arcade machine.

Inside the castle traps await you in every chamber. Dirk has a habit of walking right into them, so you need to act quickly to save his bacon. Now key objects begin to flash, some indicating a trap, others leading a safe way through to the next scene. This gives you an idea of what you are supposed to be doing, but at the same time demands progressively faster reactions.

"Dragon's Lair's graphics are absolutely amazing. You can see that from the screenshots, but what you cannot see is the brilliantly dynamic animation, and what's more everything is as smooth as a real cartoon."



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continued from page 75

DRAGON'S LAIR

Dragon's Lair's graphics are absolutely amazing. You can see that from the screenshots, but what you cannot see is the brilliantly dynamic animation, and what's more everything is as smooth as a real cartoon. In Short, they are the best graphics I have ever seen on the Amiga! (And that means *any* home computer, of course.)

Squelches, squarks and cries of terror are just some of the excellent sampled sound effects backing the graphics, with snatches of music spread throughout the game that build up the tension.

Unfortunately underneath all the game's astounding graphics and sounds lies.the same Dragon's Lair gameplay that emptied the pockets of arcade goers in a matter of seconds. The indirect controls can be very off-putting. You could be trying to get past an obstacle for hours, thinking all you have to do is time that forward joystick movement a little more precisely, when you find out by accident that you should have been moving it to the left all the time! It is that user-unfriendliness that spoils an otherwise superb and highly challenging game. Luckily the promise of *six* yes, *six*, disks packed full of more gob-smacking graphics and spine-chilling traps keeps you going.

Dragon's Lair is only available for Amiga 500's with over 512K, 2000's and 1000's with half a megabyte. It's a shame because it means so many will miss out, and retailing at £44.95 its audience is going to be reduced further still.

Dragon's Lair has its fair share of good and bad points. Against it, the gameplay can be teeth-grindingly frustrating at times, and £44.95 is way over the top, even for six disks. In its favour, there are those lovely graphics and sounds, and loads of them, that should keep you plugging away. Some will love it, some will hate it, so I'd strongly advise you demand a playtest before deciding. But it is unquentionably the most stunning home computer game you will have ever seen.

T.H.

Graphics: 97%
Sound: 90%
Playability: 66%
Overall: 71%
Price: £44.95
Rating: MEGA

Ace

SOLDIER OF LIGHT

C64

DODGY

SOFTEK'S Solider of Light conversions seem to have been in the pipeline for years, but at last both the 64 and Amiga versions have turned up on their ACE label.

It's the old alien invasion scenario again, this time taking place over three planets. Xain is your name and you get to choose the order in which you tackle the planets. The first, Cleemalt, looks like a set from Lost In Space, dry and dusty with a mountain range along the horizon. Xain is equipped with the essential laser gun and a pair of hoverboots. Clearing a planet is a simple matter of blasting your way from left to right until the scnenery scrolls no more.

What look like robotic Egyptians are the first victims of your photon-beam-stroboid mega lasers, shortly followed by the pilots of blob-shaped space-ships. Your hoverboots are handy for dodging the enemy and essential for negotiating the occasional platform clusters that lead across pits. Extra weapons can be picked up along the way but come in unmarked canisters, so picking one up when you've already got a decent weapon is a bit of a gamble. Once you reach the end of the landscape, a small guardian emerges from his den in a final attempt to kill you off. He takes a lot of shots before disintegrating but poses no great threat.

Your journey to the next planet is hindered by constant alien attacks. What you get here is a scrolling shoot 'em up of the most basic kind with only a star-field for a background and almost identical sprites forming the attack patterns. The two remaining planets differ graphically; Lagto is set in a dense prehistoric jungle defended by a giant dinosaur whereas Cleedos is a barren grey wasteland.

Xain on the 64 bears only a vague resemblance to his coin-op form. The greenery of Lagto is pleasant enough, but the rest of the scrolling backgrounds are extremely bland. At least they scroll smoothly.

The Maniacs of Noise have done a fair job on the effects and soundtrack without excelling themselves.

Soldier of Light isn't just rough around the edges, it's also far too easy. I completed the whole thing after only half an hour's play! Once that's done there's nothing to pull you back for another go, and who wants to spend around a tenner for thirty minutes-worth of game?

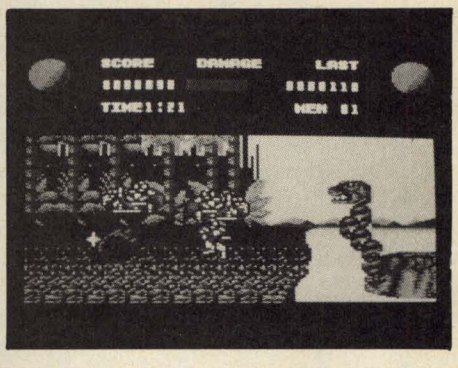
Graphics: 34%
Sound: 72%
Playability: 33%
Overall: 35%
Rating: Dodgy
Price: £8.99 (c)
£12.99 (d)

Amiga

As you'd expect, the Amiga version is far closer to the coin-op in terms of graphics. The sprites have the same shiny metallic look of the arcade machine but the scrolling isn't as smooth as the 64. The sound effects are good and zappy.

Pulling the joystick down on the 64 game makes Xain lie flat on the ground, avoiding most of the danger. On the Amiga version all he does is crouch a couple of pixels lower, not enough to dodge any bullets. That aside, the Amiga version is better to play due to a more sensible difficulty level and attractive graphics and sounds. It's still not got much staying power though, so the twenty five pounds price tag is over the top.

T.H.



Graphics: 73%
Sound: 71%
Playability: 70%
Overall: 67%
Rating: CRISP
Price: £24.99

ESPIONAGE

Grandslam

Bob Chappell turns secret agent...

As a general rule, the conversion of board games to run on home computers is very rarely successful. With the exception of chess and Scrabble, very few board games, no matter how popular they may be in their original form or how expert the conversion, make the transition from table-top to microcomputer without losing a great deal on the way.

Espionage is a converted board game and I'm afraid is no exception to this unwritten rule. Athough quite an engaging game and one which I am sure is great fun to play as a board game, it simply doesn't jell on a computer.

"This grid represents the world and the player's main objective is to become the Master Spy by being the first to reach four canisters (located in the centre of the board) containing top-secret microfilm."

Up to four players, any of whom may be human or computer-controlled, can play Espionage. All the action takes place on a large, red, white and black squared playing area. This grid represents the world and the player's main objective is to become the Master Spy by being the first to reach four canisters (located in the centre of the board) containing top-secret microfilm. The red squares are the home bases, the black squares are no-go areas and the white squares are where agents may move and engage each other in conflict.

Each player controls 12 agents (shown as icons) made up of six couriers, four secret agents and two surveillance agents. Each agent-type moves in a different fashion across the board, exactly like the bishop, queen and rook moves in chess. Any opposing pieces in your line of travel may be removed from the game (terminated) so long as there is a vacant square beyond the piece being terminated. At the start of the game, players have the option (Detente) of placing their pieces anywhere on the board, regardless of their normal movement.

One of the more interesting aspects of Espionage is that the positions of any two pieces of a player's team may be swapped over at any time. As can be imagined, this move can completely alter the direction of a game and can dramatically turn a losing position into a winning position, and vice-versa. A further option (sanctioning, selected at the beginning of a game) allows the 'termination' of an agent who shows signs of weakness by failing to terminate when he could have. This is similar to the "huffing" rule in draughts.

A piece of microfilm can be obtained by jumping over it in a diagnoal move (secret agents and couriers only) or by capturing it from an enemy agent (terminating or sanctioning). Once captured, the microfilm must be taken back to base where it stays along with and the agent holding it.

The board is too big to fit on the screen at one time but can be scrolled in any of four directions. A zoom facility magnifies any portion of the playing area, making it easier to see the nature of the pieces. The right hand side of the screen provides player status information and access to the zoom options and others (which include sound on/off, quit, give a hint, pause, let computer make your move and highlight the last move).

Graphically, Espionage is competent but dull. For instance, the board is just a series of squares and the playing pieces are simple functional representations rather than detailed icons. Sound is hardly used apart from some music that plays continuously unless you turn it off.

The best thing Espionage has going for it is the game play — it has all the elements of an intelligent strategic conflict and allowing four players to participate mean that the variations are as good as boundless. Playing such a board game on a computer does mean that a player can play against non-human opponents, have the scoring automatically handled, and obtain hints. The drawbacks, though, are that you can't see all the board at one time, the pieces are small and somehow the game loses the sparkle it would otherwise have when played around a table.

Overall, though, this is an interesting chess-cum-draughts variation. It would have benefitted by a more inspired use of the Amiga's sound and graphics abilities but, although presentationally it is a little on the dull side, Espionage does offer a reasonably engaging game of strategy. Try before buying.

B.C.

Personal Rating. 6

ROLE PLAYING GAMES

Peter Gerrard

PART II

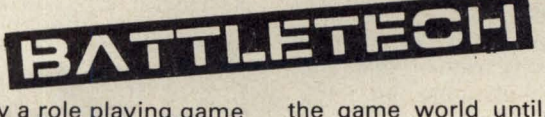
Getting Started

There are times when logistical problems get in the way of things, and there is nothing at all that can be done about them. As Antony Jacobson mentioned in his editorial in the January 1989 issue of CCI, the date on the cover bears little relation to the date of preparation of the magazine. Thus, although you are reading this some months into 1989, it is actually being written within the boundaries of the twelve days of Christmas, 1988. Not that it looks particularly Christmassy. Grey skies, biting wind, rain spattering the windows, the most Christmas-like thing that has happened so far is the pinching of one of our illustrious local pool team to play Father Christmas at the famous Wigan Pier. He does a good "ho ho ho", he does our Laurie — to use Wigan-speak.

But the main point is not so much the coming of Christmas, or even the going of Laurie, it is the absence of any connection between Commodore 64 and television. Have you tried getting time on the family television less than twelve days before Christmas? It is not easy, let me assure you.

So in the absence, which precludes me from finishing the program Venture that we discussed last month, or at least getting close to finishing it, I am loathe to inflict any listings upon you in case things may change as the program nears completion. What we will be doing instead is to take a look at some of the major problems involved in putting together such a large program, some of the programming hurdles that have to be overcome if you like, most of which can be applied to programming generally and not only this game, as well as some thoughts on programming, role playing games, starting to play role playing games, their future development, and other such diversions.

In last month's issue we gave a basic introduction to the world of role playing games, and what they consisted of. The six characteristics, the need for food, water and rest, and so on. Experience was seen to play a vital part, but rather like applying for a job that turns you down on the grounds that you haven't got the necessary experience, and the only way that you can obtain that experience is to get the blessed job in the first place, how does a total newcomer to role playing games go about starting off, gaining experience, and staying alive long enough to see what it's all about? Let's take a look.



When you play a role playing game for the first time, you will hopefully have read and at least partially digested any accompanying instructions, whether they come in the form of a booklet or another introductory program. I say partially digested, because some games seem to feature such lengthy instructions that even someone who has been playing the game for six months is still at a loss to know what is going on at times, and whether a particular bad guy is an Orcon or a Malgar (or whatever names are in use, of course) and whether the spell to defeat it is consequently a spell of POTZZ or OMOKOK (spot the subtle musical references, dear reader!).

"Until, perhaps, you reach the point where you don't want to come out again and face up to the rather mundane chores of the real world."

Ideally, or so it seems to me, a game of any sort that is setting out to ensure that your interest doesn't wane after about five minutes should start of as being relatively straightforward and gradually grow in complexity as you learn more and more about it, allowing you to become slowly drawn into the game world until, perhaps, you reach the point where you don't want to come out again and face up to the rather mundane chores of the real world. Earning a living, that kind of thing.

Having gained some sort of insight into the game before you get started,

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ROLE PLAYING GAMES

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then, the first chore will probably be to create your character, or group of characters. Since Venture involves you on your own manipulating other beings but not being directly in control of them at all time, we will consider the individual character. As discussed last month, a reasonable balance among the six characteristics is probably the best thing to aim for, and if you are given a chance to name your character as well then most people seem to choose as peculiar a name as they can think of. Perhaps the alien name generator from the A.I series might be of use here!

Once that information has been safely stored to disk or tape then the game proper can begin. Venture, as we've already seen, takes place on a ten by ten by ten matrix of a world, giving you what adventures would refer to as a thousand location map. All of the role playing games that I have seen so far can be mapped, some with great difficulty too, I might add. Alternate Reality is so difficult to map that one can only admire those with the perseverance to do so. Or pity anyone who can be so stubborn as to spend hour after hour exploring every possible avenue of flight until only those that either don't kill you off or deposit you somewhere miles from anywhere are left. That sort of complex mapping in order to solve a problem is, to my way of thinking, something of a cheat on the part of the programmer, creating a problem that can only be solved by great perseverance or stubbornness rather than by anything else. Like some of the early (and late) mazes in adventure games, whose only purpose in life was to create a complicated problem and make the game last longer. No such problems in Venture, the program maps it all out for you, so if you have a screen dump routine you will not even have to copy the map to find out where everything is.

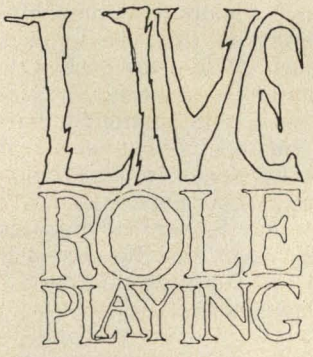
The better games will usually start by giving you a chance to get your bearings, to wander around to a greater or lesser extent, and generally you will be given the opportunity to get the feel of the game. We hope nothing disastrous will happen in the first few moves, and in a game like Venture you can just sit back and let it all take place around you, getting to grips with the game in that way. But don't sit around doing nothing for too long, because other creatures will be conniving in some way to do you evil, and you will need to get moving eventually in order, we hope again, thwart them their evil plans.

Have a good look round at first, then, and see what you can safely explore. If you are about to enter an unknown place, save your position to disk. Venture allows up to ten files to be saved on the one disk, and most other games offer at least five, so there is no need to be too careful on disk space.

Once you have had a trundle around and seen all there is to safely see, then you can start branching out a bit further and doing some rather more profitable exploring. This is where save game positions can be most useful, if you chance to meet with an untimely demise. Some games have a resurrection feature anyway, but this will usually put you back at the start, which means that it is far quicker just to re-load your position from disk.

"Taking things one step at a time and applying a spot of logic will usually win through in the end, for an illogical game has no place on a sensible computer."

What happens next clearly varies from game to game. There might be objects to collect, puzzles to solve, a mission to accomplish, good guys to boss around (but not too much or they might object) and bad guys to defeat. Taking things one step at a time and applying a spot of logic will usually win through in the end, for an illogical game has no place on a sensible computer.



But what of role playing games in the future? It is only recently that they have become immensely popular on home computers, and are a logical step forward from the classical world of adventure games, just as they in their turn were a major step forward from Hunt The Wumpus and games of that genre, if anyone remembers that particular little gem (?). They are more involved, and certainly seem more capable of convincing the humber human player that they really are taking part in a mythical, magical world.

Already we can see two distinct paths developing as people strive for more depth to the games. Better graphics, more memory, better use of sound, are all being employed by both these strands of programming development. Really there is just one fundamental difference between them: the presence or absence of a parser.

Those games with a parser are more akin to adventure games, and the role playing attributes are used to some extent or another as part of the game. Ideally there should be other characters in the game who also have these role playing attributes, who take an active part in the game, and who get in the way and foul up the clean living world in which the action commenced. Beyond Zork is as good an example as any, although even Infocom have yet to really get to grips with all the aspects of a good role playing game. Knowing them, it will not be long before they do.

Those games without a parser, or at most a primitive one (that is, in terms of vocabulary, not programming) of pull-down menus and the like, are the new development on the computer that seems to be most closely linked to the old board games of Dungeons and

ROLE PLAYING GAMES

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Dragons and the like. If parsers are the criteria, the Venture falls into this latter category.

What will happen in the future is, of course, anyone's guess, but the two programming strands will probably continue to separate until we end up with one set of games featuring immensely complex parsers and another set that have almost done away with them completely. No doubt there will a wealth of programs that fall somewhere in between, and as bigger and better computers become available, or as programmers continue to squeeze more and more out of the existing ones, we will in days to come see a huge treasure trove of immensely interesting role playing games that manage to steer away from worlds akin to Tolkein and explore other aspects of game playing.

But enough of the future, and back to our present Venture.

"I am no great believer in flow charts and structured programming, as far as I am concerned if a program works then I don't care how it was written."

programming, as far as I am concerned if a program works then I don't care how it was written. However, that sort of approach is all very well for smaller programs or programs that can easily be broken up into separate modules, but for a larger program such as Venture, or deciding what those separate modules are going to consist of, even I decided that pen and paper were best used before attacking the keyboard. There would be no point in showing you my original notes (few can read my handwriting, and I myself struggle at times trying to decipher some hastily scribbled word), but at least I can tell you roughly the processes that were worked through before I turned on the computer.

MIDDLE-EARTH

The idea for the game came about by a combination of events. I had had a rough idea floating around for a while, but somehow it never managed to survive the transition from brain to paper to computer. Then, one morning spent watching someone playing Sentinel whilst simultaneously trying to read a computer magazine, everything seemed to fit together. Venture was born! The details came later, but my original notes were of a game that was essentially good versus evil, as so many computer games are. There would be good guys and bad guys, and these beings needed names.

M.U.D

Some of them we discussed last time, but to bring them up to date there are three types of beings that are on your side. These are known as Hoppers, Sliders and Monkeys, and although they tend to roam around the game world of their own accord, you can interrupt their progress and get them to perform certain actions. A change of direction, move that boulder from one spot to another, and so on. The flip side of the good versus evil coin is provided by Zombies, Imps and Grimleys. You may recall Laurie the Father Christmas mentioned earlier. His surname is Grimley, and it seemed like an excellent name for a monster ...

This collection of Zombies, Imps and Grimleys also saunter around the game world with their own plans and ambitions in mind, and you cannot interrupt their progress as easily as you can with the good guys. You cannot communicate direct, in other words, but you can place obstacles and diversions in their path. You can even sacrifice the odd good guy, if by doing so you would gain precious time in order to reach a spell that might enable you to ... etcetera.

So, problem one when doing the actual coding was to produce the routines that allow all these creatures to roam around of their own free will,

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The first thing to realise, when planning any large program, is that it is not going to be bashed into the computer in one sitting. It is going to take many weeks and months of programming and constant refining, as one part is added and it becomes apparent that it is affecting another part of the program which you thought was working perfectly correctly. I am no great believer in flow charts and structured

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and to allow the player to interrupt the progress of the good beings in order to get them to perform various tasks as might seem necessary at the time. Just to give budding programmers something to think about, how would you go about writing the routines that would allow thirty (five of each) beings to walk around a ten by ten by ten matrix? This assumes that they can climb up boulders to get from one floor of the matrix to another, or ask you the player if you want them moved somewhere, fall down holes to descend to a lower floor, encounter food and water and anything else that might happen to be around, as well as bumping into other beings, taverns, rest rooms, and all the other dwellings that are located within the game world. An interesting little collection of programming thoughts.

beings is, needless to say, a mite more difficult.

Setting up the game world was great fun, I can ssure you. The placing of dwellings had to be done in such a way that solving even the simplest level was not going to be easy, if indeed the game can be said to be "solvable" at all.

One can quite happily go on "existing" without ever solving anything at all. Game progress can be saved to disk, as mentioned, and I am sure that, during the night, one or two beings hop across from one track of the disk to another in order to surprise me the next day. They have a life of their own.

"Game progress can be saved to disk, as mentioned, and I am sure that, during the night, one or two beings hop across from one track of the disk to another in order to surprise me the next day."

They are many other refinements that have to be made to the basic idea in order to turn it into a workable game. That basic idea, as defined last month, is to surround and capture the Guardian of the matrix. By doing so the player can progress up a level to another matrix, and be given the code number that allows him or her access to it next time around in order to save playing through the same level again. A knowledge of the random number generator is needed here. Also, a display had to be sorted out that allows the player to see sufficient information at any one time without having to continually resort to looking at help screens or windows full of data. Within the limitations of the Commodore 64 that is quite hard to do, but user-defined characters help.

My eventual "scrap" of paper turned into several sheets of A4 full of scrawled notes before the computer was turned on and I had a reasonably good idea of how everything was going to progress. As any programmer will know, the final result often bears little resemblance to the original notes, and that should be a note of encouragement to any would-be programmers who think that they will never write anything successful of their own. Persevere, and you will get there in the end.

By next month's deadline I'll have had the television to myself for almost three whole weeks, so flex those typing fingers and prepare to Venture into the world of Grimleys and Monkeys, Imps and Hoppers, Zombies and Sliders. And the Guardian! *Bye for now*

ESPIONAGE

The second major problem is, of course, the being that is controlled and manipulated by the player. You, in other words. Movement is not so bad, if we confine ourselves to the major compass points, with movements in the vertical plane being handled by encounters with boulders and holes. The six main characteristics that we discussed last month are also relatively simple to program in, along with routines for looking after the player's requirements in the food, water, and sleep areas. Manipulation of other

2300 A.D

P.G.

Blackjack by Mark Manning

Here is the third and last part of Mark Manning's excellent Blackjack program. For space reasons we had to hold it over for one month. Those readers who missed either of the first two parts can obtain back copies of CCI from our office.

```
1 REM BJ.DAT.2
2 :
3 REM   GENERATED BY DATAGEN
4 REM
5 REM    COPYRIGHT (C) 1987
6 REM
7 REM   BY MARK I MANNING IV
8 :
9 :
10 M=28672:L=990:I=10:PRINTCHR$(147)
20 FORP=1TO256:L=L+I:FORN=0TO15
30 READA$:GOSUB100
40 POKEM+N,D:CK=CK+D
50 NEXT:READA$:GOSUB100
60 CK=CK-(INT(CK/256)*256):IFCK=DTHEN90
70 A$=CHR$(147)+"LIST"+STR$(L):PRINTA$
80 POKE631,19:POKE632,13:POKE198,2:END
90 PRINTL"[SP2]OK":M=M+16:NEXT:GOTO160
100 LB=ASC(RIGHT$(A$,1))-48
110 HB=ASC( LEFT$(A$,1))-48
120 IFLB>9THENLB=LB-7
130 IFHB>9THENHB=HB-7
140 D=HB*16+LB:RETURN
150 :
160 :
170 CLR:LOAD"DATASAVER.DAT",8
180 :
190 :
1000 DATA A9,FB,8D,28,03,A9,FF,8D,0E,D4,8D,0F,D4,A9,80,8D, 99
1010 DATA 12,D4,A9,08,20,D2,FF,A9,00,20,90,FF,A9,06,8D,86, 3B
1020 DATA 02,20,44,E5,A9,0F,A2,08,A8,20,BA,FF,A9,02,A2,0F, C5
1030 DATA A0,71,20,BD,FF,20,C0,FF,A9,02,A2,08,A8,20,BA,FF, 67
1040 DATA A9,05,A2,11,A0,71,20,01,71,A9,06,A2,16,A0,71,20, 03
1050 DATA 01,71,A9,05,8D,20,D0,8D,21,D0,A9,45,A0,D8,85,FB, 04
1060 DATA 84,FC,A2,11,A0,07,A9,09,91,FB,88,10,FB,A5,FB,18, 67
1070 DATA 69,28,90,02,E6,FC,85,FB,CA,10,E9,A9,9D,A0,D8,85, F2
1080 DATA FB,84,FC,A2,0F,A0,00,A9,07,91,FB,18,A5,FB,69,28, 43
1090 DATA 90,02,E6,FC,85,FB,CA,10,EE,E8,A9,0B,9D,8C,DB,E0, 7F
1100 DATA 05,D0,F6,A0,27,B9,BB,70,99,C0,DB,88,10,F7,A9,0F, 70
1110 DATA 20,C3,FF,A9,02,20,C3,FF,4C,1C,71,07,07,07,07,03, D7
1120 DATA 03,03,03,0D,0D,0D,0D,07,07,07,07,03,03,03,03,0D, 49
1130 DATA 0D,0D,0D,07,07,07,07,03,03,03,03,0D,0D,0D,0D,07, D3
1140 DATA 07,07,07,A2,05,A0,00,A9,F2,CD,12,D0,D0,FB,8C,21, F1
1150 DATA D0,A9,01,CD,12,D0,D0,FB,8E,21,D0,8D,19,D0,4C,31, 57
1160 DATA EA,20,BD,FF,20,C0,FF,A9,00,20,D5,FF,4C,CC,FF,49, F9
1170 DATA 30,43,48,41,52,53,53,43,52,45,45,4E,20,D5,71,20, E0
1180 DATA 37,76,A9,C9,A0,71,8D,18,03,8C,19,03,A9,20,A0,27, F0
1190 DATA 99,DA,80,88,10,FA,C8,8C,02,81,8C,03,81,8C,E4,75, 41
1200 DATA A9,06,8D,04,81,A9,81,8D,05,81,78,AD,11,D0,29,7F, ED
1210 DATA 8D,11,D0,A9,D2,8D,12,D0,AD,1A,D0,09,01,8D,1A,D0, 5D
1220 DATA A9,1F,8D,0D,DC,8D,0D,DD,AD,0D,DC,AD,0D,DD,A9,40, 28
1230 DATA 8D,14,03,A9,80,8D,15,03,58,A9,0B,20,C0,75,20,ED, 08
1240 DATA F6,D0,13,20,AB,71,A2,00,BD,77,8F,20,13,80,9D,C0, 92
1250 DATA 07,E8,E0,28,D0,F2,AD,E4,75,F0,E3,A9,00,20,C0,75, 22
1260 DATA A9,1E,8D,18,D0,20,00,72,4C,44,76,78,A9,E3,8D,14, 9B
1270 DATA 03,A9,70,8D,15,03,A9,CF,8D,18,03,A9,71,8D,19,03, 3F
```

cont. on next page

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```
1280 DATA A9,01,8D,E4,75,58,60,C4,09,A2,FF,9A,4C,1C,71,A2, 0A
1290 DATA FF,9A,4C,44,76,18,A2,16,A0,22,20,F0,FF,A9,FA,A0, 8D
1300 DATA 71,20,1E,AB,A2,16,A0,22,18,20,F0,FF,A9,05,20,D2, 28
1310 DATA FF,AD,C8,71,AE,C7,71,4C,CD,BD,20,20,20,20,20,00, 69
1320 DATA A9,10,8D,E8,75,A9,01,8D,E7,75,A0,00,98,99,00,C0, 30
1330 DATA 88,D0,FA,8D,E0,75,AD,E7,75,0D,E8,75,A8,AD,1B,D4, 1B
1340 DATA C9,34,B0,F9,AA,BD,00,C0,D0,F3,98,9D,00,C0,EE,E7, 75
1350 DATA 75,AD,E7,75,C9,0E,D0,DE,A9,01,8D,E7,75,0E,E8,75, 76
1360 DATA 90,D4,AD,E9,75,F0,03,20,6B,72,AD,F6,75,F0,03,20, 00
1370 DATA 71,72,AD,03,76,F0,03,20,77,72,AD,10,76,F0,03,20, 4B
1380 DATA 7D,72,AD,1D,76,F0,03,4C,83,72,60,A2,E9,A0,75,D0, 7E
1390 DATA 16,A2,F6,A0,75,D0,10,A2,03,A0,76,D0,0A,A2,10,A0, 08
1400 DATA 76,D0,04,A2,1D,A0,76,8E,96,72,8C,97,72,29,0F,8D, 17
1410 DATA E5,75,AC,E5,75,BD,FF,FF,20,A1,72,CE,E5,75,D0,F2, 4F
1420 DATA 60,F0,0B,AC,E0,75,D9,00,C0,F0,04,C8,D0,F8,60,48, 70
1430 DATA AE,E0,75,BD,00,C0,99,00,C0,68,9D,00,C0,EE,E0,75, 51
1440 DATA 60,A5,A6,A7,A8,20,30,30,20,20,30,30,20,20,30,30, 0B
1450 DATA 20,20,30,30,20,20,3F,3F,A9,AA,AB,AC,20,30,30,20, B3
1460 DATA 20,30,30,20,20,30,30,20,20,30,30,20,20,2D,2D,C6, D3
1470 DATA 72,CA,72,CE,72,D2,72,DD,72,E1,72,E5,72,E9,72,AD, 06
1480 DATA 2E,76,20,95,73,09,30,8D,7F,05,8A,09,30,8D,7E,05, EF
1490 DATA 60,AE,EF,72,AC,F0,72,AD,2F,76,20,83,73,AE,F1,72, E5
1500 DATA AC,F2,72,AD,31,76,20,83,73,AE,F3,72,AC,F4,72,AD, 31
1510 DATA 32,76,20,83,73,AE,F5,72,AC,F6,72,AD,33,76,20,83, 11
1520 DATA 73,AE,F7,72,AC,F8,72,AD,30,76,20,83,73,AE,F9,72, 33
1530 DATA AC,FA,72,AD,34,76,20,83,73,AE,FB,72,AC,FC,72,AD, 9A
1540 DATA 35,76,20,83,73,AE,FD,72,AC,FE,72,AD,36,76,20,83, 90
1550 DATA 73,A2,16,BD,C1,72,9D,69,05,BD,D8,72,9D,B9,05,CA, E2
1560 DATA 10,F1,60,86,FB,84,FC,A0,01,20,95,73,09,30,91,FB, D2
1570 DATA 8A,88,10,F8,60,A2,00,C9,0A,90,05,E9,0A,E8,D0,F7, F8
1580 DATA 60,AC,C8,71,D0,08,CD,C7,71,90,03,F0,01,60,18,60, 76
1590 DATA A9,10,20,C0,75,20,20,7F,20,20,7F,4C,84,78,20,20, 8A
1600 DATA 20,20,20,20,20,20,20,20,20,20,20,20,20,20,20,20, 8A
1610 DATA 20,20,20,20,20,20,20,00,53,4F,52,52,59,2E,2E,2E, 93
1620 DATA 20,59,4F,55,20,43,41,4E,27,54,20,53,50,4C,49,54, C9
1630 DATA 20,00,53,55,43,4B,45,52,2E,2E,2E,2E,2E,20,20,20, FC
1640 DATA 20,20,20,20,20,20,20,20,20,20,20,00,4F,4F,50,53, 9D
1650 DATA 2E,2E,2E,20,49,20,44,45,41,4C,54,20,57,52,4F,4E, 80
1660 DATA 47,2E,2E,2E,2E,00,41,52,45,20,59,4F,55,20,53,55, 3C
1670 DATA 52,45,20,3F,3F,3F,20,20,20,20,20,20,20,20,20,00, D0
1680 DATA 59,4F,55,20,4C,4F,4F,53,45,20,48,41,4E,44,20,20, EA
1690 DATA 20,20,20,20,20,20,20,00,43,48,45,41,54,21,2E,2E, AC
1700 DATA 2E,20,59,4F,55,20,57,49,4E,20,48,41,4E,44,20,00, 60
1710 DATA 43,41,52,44,20,43,4F,55,4E,54,20,53,54,41,4E,44, BD
1720 DATA 53,20,41,54,20,00,59,4F,55,20,43,41,4E,27,54,20, 6F
1730 DATA 44,4F,55,42,4C,45,20,44,4F,57,4E,20,4E,4F,57,00, 96
1740 DATA 50,4C,45,41,53,45,20,45,4E,54,45,52,20,42,45,54, E9
1750 DATA 20,28,31,2D,39,29,20,20,20,00,44,4F,20,59,4F,55, 01
1760 DATA 20,57,41,4E,54,20,49,4E,53,55,52,41,4E,43,45,20, 43
1770 DATA 3F,20,20,00,50,52,45,53,53,20,52,55,4E,2F,53,54, 3A
1780 DATA 4F,50,20,46,4F,52,20,47,41,4D,45,21,21,00,53,48, F7
1790 DATA 55,46,46,4C,49,4E,47,2E,2E,2E,2E,2E,20,20,20,20, 68
1800 DATA 20,20,20,20,20,20,20,00,50,4C,45,41,53,45,20,45, 67
1810 DATA 4E,54,45,52,20,59,4F,55,52,20,43,48,4F,49,43,45, DA
1820 DATA 20,00,48,41,2E,2E,20,49,20,48,41,56,45,20,42,4C, 3A
1830 DATA 41,43,4B,4A,41,43,4B,21,21,21,21,00,49,4E,53,55, E5
1840 DATA 46,46,49,43,49,45,4E,54,20,46,55,4E,44,53,20,2D, 1A
1850 DATA 24,24,24,2D,20,00,47,41,4D,45,20,4F,56,45,52,2E, 77
1860 DATA 2E,20,52,45,53,54,41,52,54,49,4E,47,2E,2E,2E,00, 52
1870 DATA 44,41,4D,4E,21,20,49,20,57,4F,55,4C,44,27,56,45, 69
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1880 DATA 20,57,4F,4E,20,54,48,41,54,00,BE,73,D8,73,F2,73, AF
1890 DATA 0C,74,26,74,40,74,58,74,70,74,86,74,A0,74,BA,74, 69
1900 DATA D4,74,EE,74,08,75,22,75,3C,75,56,75,70,75,4D,49, 1E
1910 DATA 4D,49,56,A9,0F,20,C0,75,20,20,7F,20,20,7F,A9,00, 3E
1920 DATA 0A,AA,BD,8A,75,85,14,BD,8B,75,85,15,A2,16,A0,01, F7
1930 DATA 18,20,F0,FF,A9,90,20,D2,FF,A5,14,A4,15,4C,1E,AB, CF
1940 DATA 00,00,00,00,00,00,00,00,00,F0,94,CE,46,2D,05,83, 1C
1950 DATA CD,50,2D,03,5A,2D,09,D0,47,4F,2E,2E,2E,64,2D,03, 7D
1960 DATA 6E,2D,08,A2,C8,18,FF,C1,78,2D,03,82,2D,10,F0,2E, E7
1970 DATA C8,D8,D1,54,53,46,58,44,43,52,D1,8C,2D,03,96,2D, C6
1980 DATA 0A,F0,14,C8,DA,F0,07,C8,A0,2D,00,00,00,00,00,00, 02
1990 DATA 00,00,00,00,00,00,00,A2,4D,A9,00,9D,E9,75,CA,10, 6F
2000 DATA FA,4C,F4,79,20,D5,71,20,37,76,20,11,73,A9,00,85, 27
2010 DATA C6,A9,09,20,C0,75,20,E4,FF,C9,43,D0,07,38,20,B5, E7
2020 DATA 78,4C,4D,76,C9,00,F0,EE,C9,31,90,EA,C9,3A,B0,E6, 22
2030 DATA 29,0F,A8,18,A9,00,69,05,88,D0,FB,8D,2A,76,20,A1, 72
2040 DATA 73,90,0D,20,B3,75,AD,2A,76,C9,05,D0,C0,4C,B0,73, E4
2050 DATA A9,00,20,C0,75,20,60,79,20,11,73,AD,1F,76,29,0F, F9
2060 DATA C9,01,F0,0E,C9,0A,B0,0A,AD,2F,76,C9,15,F0,11,4C, CB
2070 DATA 56,77,AD,2F,76,C9,15,D0,3D,AD,2E,76,C9,15,F0,11, 05
2080 DATA 20,F9,7E,4E,2A,76,20,F9,7E,A9,03,20,C0,75,4C,D9, 47
2090 DATA 76,20,0B,7F,A9,0E,20,C0,75,AD,1D,76,29,7F,8D,1D, 05
2100 DATA 76,20,17,7E,20,FF,72,20,D5,71,20,20,7F,20,20,7F, A5
2110 DATA 20,20,7F,4C,44,76,A9,0A,20,C0,75,20,E4,FF,F0,FB, 60
2120 DATA C9,43,D0,07,38,20,B5,78,4C,F6,76,C9,59,F0,0D,C9, 68
2130 DATA 4E,D0,E8,AD,2E,76,C9,15,D0,3C,F0,B5,AD,2E,76,C9, 68
2140 DATA 15,D0,08,A9,11,20,C0,75,4C,D9,76,AD,2A,76,4A,8D, 23
2150 DATA E3,75,18,6D,2A,76,20,A1,73,90,06,20,B3,75,4C,56, 54
2160 DATA 77,AD,C7,71,38,ED,E3,75,8D,C7,71,AD,C8,71,E9,00, C1
2170 DATA 8D,C8,71,20,D5,71,A9,00,85,C6,20,11,73,A9,0D,20, 5B
2180 DATA C0,75,20,E4,FF,F0,FB,A2,07,DD,8B,77,F0,05,CA,10, D5
2190 DATA F8,30,E3,8A,0A,AA,BD,93,77,8D,FF,C1,BD,94,77,8D, 87
2200 DATA 00,C1,A9,00,20,C0,75,18,6C,FF,C1,54,53,46,58,44, 13
2210 DATA 43,52,51,0E,78,2E,7B,78,78,26,7A,A3,77,B5,78,81, 80
2220 DATA 78,9A,78,AD,E9,75,29,0F,C9,02,D0,4A,AD,2F,76,C9, 4D
2230 DATA 0A,90,4E,C9,0C,B0,4A,AD,2A,76,0A,18,6D,2B,76,6D, EE
2240 DATA 2C,76,6D,2D,76,20,A1,73,90,06,20,B3,75,4C,56,77, CB
2250 DATA 0E,2A,76,20,89,79,20,FA,7D,20,11,73,20,EC,7A,8A, E6
2260 DATA F0,0E,AD,1D,76,29,7F,8D,1D,76,20,17,7E,20,FF,72, 32
2270 DATA 20,20,7F,4C,2E,7B,A9,08,20,C0,75,20,20,7F,4C,56, 4D
2280 DATA 77,AD,30,76,C9,0A,90,EE,C9,0C,90,AB,B0,E8,20,89, B9
2290 DATA 79,20,FA,7D,AD,2F,76,C9,16,B0,03,4C,56,77,20,11, F7
2300 DATA 73,AD,30,76,C9,16,90,F3,20,EC,7A,E0,01,D0,0E,AD, 11
2310 DATA 1D,76,29,7F,8D,1D,76,20,17,7E,20,FF,72,A9,02,20, 7D
2320 DATA C0,75,20,20,7F,20,20,7F,A9,00,20,C0,75,20,0B,7F, D8
2330 DATA 20,C7,7F,20,EC,7A,8A,D0,06,98,F0,16,4C,3F,7B,C0, 88
2340 DATA 00,F0,0F,8C,E3,75,20,AE,7F,20,BD,7D,20,11,73,4C, 02
2350 DATA 90,7E,20,37,76,4C,44,76,20,A1,78,20,F4,79,4C,4D, 42
2360 DATA 78,20,A1,78,20,F4,79,20,37,76,20,11,73,A9,C4,8D, EB
2370 DATA C7,71,A9,09,8D,C8,71,4C,1C,71,20,A1,78,78,4C,E2, 53
2380 DATA FC,A9,04,20,C0,75,20,E4,FF,F0,FB,C9,59,D0,01,60, 92
2390 DATA 68,68,4C,56,77,08,A9,01,18,6D,2A,76,6D,2B,76,6D, CD
2400 DATA 2C,76,6D,2D,76,20,A1,73,90,0A,20,B3,75,28,90,01, 4E
2410 DATA 60,4C,56,77,CE,C7,71,D0,03,CE,C8,71,20,D5,71,A9, B6
2420 DATA 07,20,C0,75,A0,00,8C,E1,75,8C,E2,75,CC,E0,75,F0, 88
2430 DATA 0F,B9,00,C0,20,1E,79,C8,CC,E0,75,D0,F4,20,4A,79, 57
2440 DATA AD,E2,75,F0,03,A9,2D,FC,A9,2B,20,16,E7,AE,E1,75, 15
2450 DATA A9,00,20,CD,BD,20,20,7F,20,20,7F,4C,CD,78,29,0F, AF
2460 DATA C9,01,F0,11,C9,09,B0,0D,C9,08,F0,1D,AD,E2,75,D0, BB
2470 DATA 09,EE,E1,75,60,AD,E2,75,D0,F7,CE,E1,75,10,0A,49, BA
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2480 DATA 01,8D,E2,75,A9,01,8D,E1,75,60,AD,1E,76,D0,01,60, FE
2490 DATA 29,0F,C9,01,F0,D6,C9,09,B0,D2,C9,08,F0,EB,D0,D5, 6B
2500 DATA 20,89,79,20,FA,7D,20,26,7F,20,B2,79,AD,1D,76,09, 7D
2510 DATA 80,8D,1D,76,20,17,7E,20,26,7F,20,89,79,20,FA,7D, 50
2520 DATA 20,26,7F,20,B2,79,4C,17,7E,20,D3,79,AA,AD,E9,75, 62
2530 DATA 29,0F,A8,C8,EE,E9,75,8A,99,E9,75,29,0F,20,DB,7A, 84
2540 DATA 18,6D,2F,76,8D,2F,76,98,18,6D,30,76,8D,30,76,4C, 22
2550 DATA C6,7D,20,D3,79,AA,AD,1D,76,29,0F,A8,C8,EE,1D,76, E4
2560 DATA 8A,99,1D,76,29,0F,20,DB,7A,18,6D,2E,76,8D,2E,76, A1
2570 DATA 4C,C6,7D,AC,E0,75,C0,33,90,10,A9,0C,20,C0,75,20, EE
2580 DATA 00,72,20,23,7F,A9,00,20,C0,75,AC,E0,75,B9,00,C0, 9A
2590 DATA EE,E0,75,60,A2,18,A9,20,9D,29,04,9D,51,04,9D,79, 92
2600 DATA 04,9D,A1,04,9D,C9,04,9D,F1,04,9D,19,05,9D,F9,06, 2B
2610 DATA 9D,D1,06,9D,A9,06,9D,81,06,9D,59,06,9D,31,06,9D, 7C
2620 DATA 09,06,CA,10,D3,60,AD,EA,75,29,0F,8D,E3,75,AD,EB, 59
2630 DATA 75,29,0F,CD,E3,75,D0,09,AD,E9,75,29,0F,C9,02,F0, 02
2640 DATA 0B,A9,01,20,C0,75,20,20,7F,4C,56,77,AD,2A,76,0A, 3B
2650 DATA 6D,2B,76,6D,2C,76,20,A1,73,90,06,20,B3,75,4C,56, 0C
2660 DATA 77,AD,F6,75,F0,58,AD,03,76,F0,36,AD,EB,75,8D,11, DA
2670 DATA 76,29,0F,20,DB,7A,8D,33,76,8C,36,76,EE,10,76,AD, 8C
2680 DATA 2A,76,8D,2D,76,AD,EA,75,29,0F,20,DB,7A,8D,2F,76, 47
2690 DATA 8C,30,76,A9,00,8D,EB,75,CE,E9,75,20,BD,7D,4C,56, 37
2700 DATA 77,AD,EB,75,8D,04,76,29,0F,20,DB,7A,8D,32,76,8C, 30
2710 DATA 35,76,EE,03,76,AD,2A,76,8D,2C,76,4C,85,7A,AD,EB, A1
2720 DATA 75,8D,F7,75,29,0F,20,DB,7A,8D,31,76,8C,34,76,EE, 14
2730 DATA F6,75,AD,2A,76,8D,2B,76,4C,85,7A,C9,01,F0,08,C9, D0
2740 DATA 0A,90,02,A9,0A,A8,60,A9,0B,A0,01,60,AD,F6,75,D0, C4
2750 DATA 0D,AD,03,76,D0,11,AD,10,76,D0,14,4C,17,7B,29,40, 36
2760 DATA D0,EF,A0,01,A2,00,60,29,40,D0,EB,A0,02,D0,F5,29, 4C
2770 DATA 40,D0,E8,A0,03,D0,ED,A2,01,A0,03,AD,10,76,D0,0D, FA
2780 DATA 88,AD,03,76,D0,07,88,AD,F6,75,D0,01,88,60,AD,E9, 6E
2790 DATA 75,09,40,8D,E9,75,20,EC,7A,8A,D0,20,98,F0,1D,C9, 85
2800 DATA 03,F0,0D,C9,02,F0,0F,20,5F,7B,20,BD,7D,4C,56,77, BC
2810 DATA 20,CF,7B,4C,4A,7B,20,97,7B,4C,4A,7B,4C,90,7E,A0, 74
2820 DATA 0C,B9,E9,75,48,B9,F6,75,99,E9,75,68,99,F6,75,88, EE
2830 DATA 10,EF,AD,2F,76,AE,31,76,8D,31,76,8E,2F,76,AD,30, D8
2840 DATA 76,AE,34,76,8D,34,76,8E,30,76,AD,2A,76,AE,2B,76, AD
2850 DATA 8D,2B,76,8E,2A,76,60,A0,0C,B9,E9,75,48,B9,03,76, A6
2860 DATA 99,E9,75,68,99,03,76,88,10,EF,AD,2F,76,AE,32,76, 46
2870 DATA 8D,32,76,8E,2F,76,AD,30,76,AE,35,76,8D,35,76,8E, 20
2880 DATA 30,76,AD,2A,76,AE,2C,76,8D,2C,76,8E,2A,76,60,A0, C0
2890 DATA 0C,B9,E9,75,48,B9,10,76,99,E9,75,68,99,10,76,88, 70
2900 DATA 10,EF,AD,2F,76,AE,33,76,8D,33,76,8E,2F,76,AD,30, 5E
2910 DATA 76,AE,36,76,8D,36,76,8E,30,76,AD,2A,76,AE,2D,76, 39
2920 DATA 8D,2D,76,8E,2A,76,60,48,29,F0,4A,4A,4A,4A,8D,E8, F5
2930 DATA 75,68,29,0F,F0,45,8D,E7,75,C9,01,D0,03,4C,55,7D, E3
2940 DATA C9,0A,D0,03,4C,21,7D,90,03,4C,8A,7C,20,31,7D,AD, D3
2950 DATA E7,75,09,30,8D,6C,7C,18,69,62,8D,82,7C,AD,E8,75, 55
2960 DATA C9,04,D0,02,A9,03,C9,08,D0,02,A9,04,AA,CA,BD,5E, 7F
2970 DATA 7C,8D,71,7C,BD,62,7C,8D,7D,7C,60,68,68,60,41,58, BF
2980 DATA 5A,53,A0,A2,A3,A1,55,43,43,43,49,42,FF,FF,FF,42, DA
2990 DATA 42,FF,FF,FF,42,42,FF,FF,FF,42,42,FF,FF,FF,42,42, 9F
3000 DATA FF,FF,FF,42,4A,43,43,43,4B,00,A9,8C,8D,72,7C,A9, 95
3010 DATA 8D,8D,73,7C,A9,90,8D,76,7C,A9,91,8D,77,7C,A9,92, 4B
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3020 DATA 8D,78,7C,A9,8E,8D,7B,7C,A9,8F,8D,7C,7C,AD,E7,75, 4D
3030 DATA C9,0B,D0,03,4C,00,7D,C9,0C,D0,03,4C,DF,7C,A9,0B, C0
3040 DATA 8D,6C,7C,A9,80,8D,6D,7C,A9,81,8D,6E,7C,A9,86,8D, 31
3050 DATA 80,7C,A9,87,8D,81,7C,A9,9D,8D,82,7C,4C,3D,7C,A9, 66
3060 DATA 11,8D,6C,7C,A9,82,8D,6D,7C,A9,83,8D,6E,7C,A9,88, 61
3070 DATA 8D,80,7C,A9,89,8D,81,7C,A9,9E,8D,82,7C,4C,3D,7C, 7D
3080 DATA A9,0A,8D,6C,7C,A9,84,8D,6D,7C,A9,85,8D,6E,7C,A9, 96
3090 DATA 8A,8D,80,7C,A9,8B,8D,81,7C,A9,9C,8D,82,7C,4C,3D, C0
3100 DATA 7C,20,31,7D,A9,14,8D,6C,7C,A9,9F,8D,82,7C,4C,3D, 98
3110 DATA 7C,A9,20,8D,6D,7C,8D,6E,7C,8D,72,7C,8D,73,7C,8D, 4E
3120 DATA 76,7C,8D,77,7C,8D,78,7C,8D,7B,7C,8D,7C,7C,8D,80, 57
3130 DATA 7C,8D,81,7C,60,20,31,7D,A9,01,8D,6C,7C,A9,A4,8D, 84
3140 DATA 82,7C,4C,3D,7C,A2,00,A0,00,BD,66,7C,F0,3E,91,FB, 22
3150 DATA AD,E6,75,91,FD,C8,E8,C0,05,D0,EE,A0,00,18,A5,FB, 43
3160 DATA 69,28,90,02,E6,FC,85,FB,18,A5,FD,69,28,90,02,E6, 8B
3170 DATA FE,85,FD,4C,69,7D,A9,56,A2,02,9D,6C,7C,9D,71,7C, EF
3180 DATA 9D,76,7C,9D,7B,7C,9D,80,7C,CA,10,EE,60,AD,E8,75, DD
3190 DATA C9,03,B0,03,A9,00,FC,A9,02,8D,E6,75,60,20,F4,79, 81
3200 DATA 20,FA,7D,4C,17,7E,A9,0F,8D,18,D4,A9,81,8D,0B,D4, C0
3210 DATA A9,0E,8D,08,D4,A9,02,8D,07,D4,A9,8F,8D,0C,D4,A9, 41
3220 DATA 47,8D,0D,D4,A2,20,A0,80,88,D0,FD,CA,D0,F8,A9,00, 68
3230 DATA 8D,07,D4,8D,08,D4,8D,0B,D4,60,A0,01,8C,E5,75,B9, 45
3240 DATA E9,75,20,07,7C,20,AD,7D,20,52,7E,20,65,7D,AC,E5, 13
3250 DATA 75,C8,C0,0C,D0,E6,60,A0,01,8C,E5,75,AD,1D,76,F0, E9
3260 DATA F5,29,80,F0,12,20,96,7D,A9,03,8D,E6,75,20,66,7E, 54
3270 DATA 20,65,7D,AC,E5,75,C8,8C,E5,75,B9,1D,76,20,07,7C, F9
3280 DATA 20,AD,7D,20,66,7E,20,65,7D,AC,E5,75,C8,C0,0C,D0, B3
3290 DATA E6,60,AC,E5,75,88,B9,85,7E,85,FB,85,FD,A9,06,85, 79
3300 DATA FC,A9,DA,85,FE,60,AC,E5,75,88,B9,7A,7E,85,FB,85, 1F
3310 DATA FD,A9,04,85,FC,A9,D8,85,FE,60,29,2B,2D,2F,31,33, C2
3320 DATA 35,37,39,3B,3D,09,0B,0D,0F,11,13,15,17,19,1B,1D, B0
3330 DATA AD,1D,76,29,7F,8D,1D,76,20,17,7E,AD,2E,76,C9,11, 98
3340 DATA B0,0F,20,B2,79,20,17,7E,20,FF,72,20,23,7F,4C,9B, 91
3350 DATA 7E,20,FF,72,AD,2E,76,C9,16,90,76,A9,01,8D,E3,75, 65
3360 DATA 20,DB,7F,EE,E3,75,AD,F6,75,F0,09,20,C7,7F,20,5F, 1B
3370 DATA 7B,20,DB,7F,EE,E3,75,AD,03,76,F0,09,20,C7,7F,20, FB
3380 DATA 97,7B,20,DB,7F,EE,E3,75,AD,10,76,F0,09,20,C7,7F, 5F
3390 DATA 20,CF,7B,20,DB,7F,4C,44,76,18,AD,C7,71,6D,2A,76, 53
3400 DATA 90,03,EE,C8,71,8D,C7,71,4C,D5,71,38,AD,C7,71,ED, 6E
3410 DATA 2A,76,8D,C7,71,AD,C8,71,E9,00,8D,C8,71,4C,D5,71, FA
3420 DATA 20,23,7F,20,26,7F,A0,FF,A2,FF,CA,D0,FD,88,D0,F8, A8
3430 DATA 60,A9,01,8D,E3,75,20,92,7F,B0,06,20,DB,7F,4C,44, 88
3440 DATA 7F,20,F7,7F,20,AE,7F,EE,E3,75,AD,E9,75,F0,0E,20, 59
3450 DATA 92,7F,B0,06,20,DB,7F,4C,5D,7F,20,F7,7F,20,AE,7F, A5
3460 DATA EE,E3,75,AD,E9,75,F0,0E,20,92,7F,B0,06,20,DB,7F, 55
3470 DATA 4C,76,7F,20,F7,7F,20,AE,7F,EE,E3,75,AD,E9,75,F0, BA
3480 DATA 0E,20,92,7F,B0,06,20,DB,7F,4C,8F,7F,20,F7,7F,4C, 65
3490 DATA 44,76,AD,30,76,CD,2E,76,F0,02,B0,10,AD,2F,76,C9, B0
3500 DATA 16,B0,07,CD,2E,76,F0,02,B0,02,38,E2,18,60,AD,E3, B4
3510 DATA 75,C9,01,F0,09,C9,02,F0,08,C9,03,F0,07,60,4C,5F, 7D
3520 DATA 7B,4C,97,7B,4C,CF,7B,A2,0C,A9,00,9D,E9,75,CA,10, 18
3530 DATA FA,8D,2F,76,8D,30,76,8D,2A,76,60,A9,06,20,C0,75, 08
3540 DATA AE,E3,75,A9,00,20,CD,BD,20,BD,7D,20,F9,7E,20,20, 92
3550 DATA 7F,20,23,7F,4C,20,7F,A9,05,20,C0,75,AE,E3,75,A9, 70
```

Chessboard

Paul Jensen

This is a simple demonstration of user-defined graphics for the 64. It is so easy that it should present no problems even to a complete novice. Nice work, Paul.

```
100 FORI=49152TO49204
105 READA:POKEI,A
110 NEXTI:SYS49152
115 A$="[BLK]←←←[CD][CL3]←←←[CD][CL3]←←←[CU2]"
120 B$="[BLK]↑↑↑[CD][CL3]↑↑↑[CD][CL3]↑↑↑[CU2]"
125 C$=B$+A$+B$+A$+B$+A$+B$+A$
130 D$=A$+B$+A$+B$+A$+B$+A$+B$
135 X(1)=255:X(2)=127:X(3)=63:X(4)=31
140 X(5)=15:X(6)=7:X(7)=3:X(8)=0
145 POKE53280,12:POKE53281,1
150 PRINT"[CLR]";
155 FORI=1TO24
160 PRINT"[CR6][BLK]![SP24]!"
165 NEXTI
170 PRINT"[CR3][BLU]THIS CHESS BOARD IS CONFUSING ME!";
175 POKE53272,28
180 PRINT"[HOM]";
185 FORI=1TO4:PRINT"[CR7]";C$
190 PRINT"[CD2][CR7]";D$
195 PRINT"[CD2]";
200 NEXTI
205 FORI=0TO7
210 POKE12528+I,255
215 FORJ=0TO7
220 POKE12543-J,X(I+1)
225 NEXTJ,I
230 FORT=1TO500:NEXTT
235 FORI=7TO0STEP-1
240 POKE12528+I,0
245 FORJ=0TO7
250 POKE12543-J,X(I+1)
255 NEXTJ,I
260 FORT=1TO500:NEXTT
265 GOTO205
270 REM M/C DATA
275 DATA120,169,051,133,001,169,208,141,017,192,169,048,141,020,192,173,000,224
280 DATA141,000,064,238,016,192,238,019,192,173,016,192,201,000,208,237,238,017
285 DATA192,238,020,192,173,017,192,201,224,208,224,169,055,133,001,088,096
```

Cube

Paul Jensen

This is a somewhat more advanced version of Paul's previous program, Chessboard. It allows you to manipulate a cube is a ver 'Rubik' way.

```
100 REM * SET UP SCREEN *
105 :
110 DIMS(6,3,3),Q(6,3,3),X(6,3,3)
```

```
115 FORB=1TO3:FORA=1TO3
120 S(1,A,B)=31:Q(1,A,B)=2
125 S(2,A,B)=28:Q(2,A,B)=5
130 S(3,A,B)=30:Q(3,A,B)=1
135 S(4,A,B)=129:Q(4,A,B)=4
140 S(5,A,B)=5:Q(5,A,B)=3
145 S(6,A,B)=158:Q(6,A,B)=6
150 NEXTA,B
155 :
160 POKE53280,11:POKE53281,0:PRINT"[CLR][CR9][YEL]THE CUBE"
165 PRINT"[CR9][YEL]─────────"
170 A$(1)="[REV][SP3][CD][CL3][SP3][CD][CL3][SP3]"
175 A$(2)="[REV]▚[CD][CL2]▚ [CD][CL2][SP2][CD][CL2] [OFF]▚[CD][CL2]▚"
180 A$(3)="[REV]▚[SP2][OFF]▚[CD][CL5][REV]▚[SP2][OFF]▚"
185 PRINT"[CR2][PUR]┌──────────────────────┐"
190 FORI=1TO20:PRINT"[CR2][PUR]│ [SP20] │":NEXT
195 PRINT"[CR2][PUR]└──────────────────────┘"
200 GOSUB640
205 GOTO225
210 :
215 REM * MANIPULATE CUBE *
220 :
225 GETA$:IFA$=""THEN225
230 IFA$="[CU]"THEN315
235 IFA$="[CD]"THEN325
240 IFA$="[CR]"THEN335
245 IFA$="[CL]"THEN345
250 IFA$="_"THEN355
255 IFA$="R"THEN365
260 IFA$="L"THEN375
265 IFA$="L"THEN385
270 IFA$="T"THENC=3:W=1:GOTO395
275 IFA$="│"THENC=3:W=1:GOTO405
280 IFA$="B"THENC=5:W=3:GOTO395
285 IFA$="│"THENC=5:W=3:GOTO405
290 IFA$="F"THEN415
295 IFA$="─"THEN425
300 IFA$="[CLR]"THENRUN
305 GOTO225
310 :
315 W1=3:W2=5:W3=1:W4=4:C=2:GOSUB460:C=6:GOSUB460:GOSUB535:GOSUB640:GOTO225
320 :
325 W1=1:W2=4:W3=3:W4=5:C=2:GOSUB435:C=6:GOSUB435:GOSUB535:GOSUB640:GOTO225
330 :
335 W1=2:W2=6:W3=1:W4=4:C=3:GOSUB435:C=5:GOSUB435:GOSUB560:GOSUB640:GOTO225
340 :
345 W1=1:W2=4:W3=2:W4=6:C=3:GOSUB460:C=5:GOSUB460:GOSUB560:GOSUB640:GOTO225
350 :
355 C=2:V=3:W1=3:W2=5:W3=1:W4=4:GOSUB460:GOSUB485:GOSUB640:GOTO225
360 :
365 C=2:V=3:W1=1:W2=4:W3=3:W4=5:GOSUB435:GOSUB485:GOSUB640:GOTO225
370 :
375 C=6:V=1:W1=3:W2=5:W3=1:W4=4:GOSUB460:GOSUB485:GOSUB640:GOTO225
380 :
385 C=6:V=1:W1=1:W2=4:W3=3:W4=5:GOSUB435:GOSUB485:GOSUB640:GOTO225
390 :
395 W1=2:W2=6:W3=1:W4=4:GOSUB510:GOSUB435:GOSUB640:GOTO225
400 :
405 W1=1:W2=4:W3=2:W4=6:GOSUB510:GOSUB460:GOSUB640:GOTO225
410 :
415 W1=2:W2=6:W3=3:W4=5:GOSUB580:C=1:GOSUB460:GOSUB640:GOTO225
420 :
425 W1=3:W2=5:W3=2:W4=6:GOSUB605:C=1:GOSUB435:GOSUB640:GOTO225
430 :
435 Z1=Q(C,3,3):Z2=Q(C,2,3):Q(C,3,3)=Q(C,1,3):Q(C,2,3)=Q(C,1,2)
440 Q(C,1,3)=Q(C,1,1):Q(C,1,2)=Q(C,2,1):Q(C,1,1)=Q(C,3,1):Q(C,2,1)=Q(C,3,2)
445 Q(C,3,1)=Z1:Q(C,3,2)=Z2
450 RETURN
455 :
```

```
460 Z1=Q(C,1,1):Z2=Q(C,1,2):Q(C,1,1)=Q(C,1,3):Q(C,1,2)=Q(C,2,3)
465 Q(C,1,3)=Q(C,3,3):Q(C,2,3)=Q(C,3,2):Q(C,3,3)=Q(C,3,1):Q(C,3,2)=Q(C,2,1)
470 Q(C,3,1)=Z1:Q(C,2,1)=Z2
475 RETURN
480 :
485 FORA=1TO3:Z(A)=Q(W1,V,4-A):Y(A)=Q(W2,V,4-A):NEXTA:FORA=1TO3
490 Q(W1,V,A)=Q(W3,V,A):Q(W3,V,A)=Y(A):Q(W2,V,A)=Q(W4,V,A):Q(W4,V,A)=Z(A)
495 NEXTA
500 RETURN
505 :
510 FORA=1TO3:X(W1,A,W)=Q(W1,4-A,W):X(W2,A,W)=Q(W2,4-A,W):NEXTA
515 FORA=1TO3:Q(W1,A,W)=Q(W3,A,W):Q(W3,A,W)=X(W2,A,W):Q(W2,A,W)=Q(W4,A,W)
520 Q(W4,A,W)=X(W1,A,W):NEXTA
525 RETURN
530 :
535 FORB=1TO3:FORA=1TO3:X(W1,A,B)=Q(W1,A,4-B):X(W2,A,B)=Q(W2,A,4-B):NEXTA,B
540 FORB=1TO3:FORA=1TO3:Q(W1,A,B)=Q(W3,A,B):Q(W3,A,B)=X(W2,A,B)
545 Q(W2,A,B)=Q(W4,A,B):Q(W4,A,B)=X(W1,A,B):NEXTA,B
550 RETURN
555 :
560 FORB=1TO3:FORA=1TO3:X(W1,A,B)=Q(W1,4-A,B):X(W2,A,B)=Q(W2,4-A,B):NEXTA,B
565 GOSUB540
570 RETURN
575 :
580 FORA=1TO3:X(W1,1,A)=Q(W1,1,4-A):X(W2,1,A)=Q(W2,1,4-A):NEXTA
585 FORA=1TO3:Q(W1,1,A)=Q(W3,A,3):Q(W3,A,3)=X(W2,1,A):Q(W2,1,A)=Q(W4,A,3)
590 Q(W4,A,3)=X(W1,1,A):NEXTA
595 RETURN
600 :
605 FORA=1TO3:X(W1,A,3)=Q(W1,4-A,3):X(W2,A,3)=Q(W2,4-A,3):NEXTA
610 FORA=1TO3:Q(W1,A,3)=Q(W3,1,A):Q(W3,1,A)=X(W2,A,3):Q(W2,A,3)=Q(W4,1,A)
615 Q(W4,1,A)=X(W1,A,3):NEXTA
620 RETURN
625 :
630 REM * DISPLAY ROUTINE *
635 :
640 FORK=1TO3
645 FORB=1TO3:FORA=1TO3:P=Q(K,A,B):READX,Y
650 PRINT"[HOM]";:FORL=1TOY:PRINT"[CD]";:NEXTL
655 PRINTTAB(X)+CHR$(S(P,A,B))+A$(K);
660 NEXTA,B,K
665 RESTORE:RETURN
670 :
675 REM * CUBE DATA *
680 :
685 DATA3,12,7,12,11,12,3,16,7,16,11,16,3,20,7,20,11,20
690 DATA16,10,19,7,22,4,16,14,19,11,22,8,16,18,19,15,22,12
695 DATA10,3,14,3,18,3,7,6,11,6,15,6,4,9,8,9,12,9
700 :
```

Mob Positioning *Part 2*

This program should have been included with Mob Positioning last month — the person responsible for its omission has been "tronned" and is now only a memory file ...

```
1 REM ************************************
2 REM *        MOB POSITIONING           *
3 REM * USE SYS 49152,X-POS,Y-POS,MOB *
4 REM *  TO RELOCATE CHANGE VAR' A     *
5 REM ************************************
```

```
9 A=49152:S=0
10 FORT=0TO74:READD:C=C+D
11 POKEA,D:A=A+1:NEXTT
12 IF C<>8612 THENPRINT"DATA ERROR"
100 DATA 032,253,174,032,138,173,032,247
110 DATA 183,032,000,226,138,072,032,000
120 DATA 226,224,008,176,049,164,021,192
130 DATA 002,176,043,138,010,170,104,157
140 DATA 001,208,165,020,157,000,208,138
150 DATA 074,170,232,169,000,056,042,202
160 DATA 208,252,166,021,208,009,073,255
170 DATA 045,016,208,141,016,208,096,013
180 DATA 016,208,141,016,208,096,104,076
190 DATA 072,178,096
```

Utility Box *Parts 3 and 4*

These are very simple scrolling messages written in Basic, continuing our series of useful and easy tips from Madhu Surendranath

```
10 REM ************************
20 REM * UTILITY BOX - PART 3 *
30 REM *     (C) SEPT '88     *
40 REM *      WRITTEN BY      *
50 REM * MADHU   SURENDRANATH *
60 REM * 'VERTICAL  SCROLLER' *
70 REM ************************
80 REM FORGET ALL REM LINES TO USE AS PART OF YOUR OWN PROGRAM
90 REM YOU CAN DEFINE A$ AS YOUR OWN MESSAGE
100 A$=".........THIS.IS.A.DEMO.MESSAGE........."
110 A$=A$+A$+A$
120 PRINT CHR$(147)
130 FOR J=1 TO 24:PRINT"[CD]":NEXT
140 FOR A=1 TO LEN(A$)
150 PRINT TAB(5)MID$(A$,A,1)
160 NEXT A
170 FOR J=1 TO 15:PRINT"[CD]":NEXT
```

```
10 REM ************************
20 REM * UTILITY BOX - PART 4 *
30 REM *     (C) SEPT '88     *
40 REM *      WRITTEN BY      *
50 REM * MADHU   SURENDRANATH *
60 REM * 'VERTICAL SCROLLER2' *
70 REM ************************
80 REM FORGET ALL REM LINES TO USE AS PART OF YOUR OWN PROGRAM
90 REM YOU CAN DEFINE A$ AS YOUR OWN MESSAGE
100 A$=".........THIS.IS.A.DEMO.MESSAGE........."
110 A$=A$+A$+A$
120 PRINT CHR$(147);
130 FOR A=LEN (A$)-1 TO 23 STEP -1
140 B$=MID$(A$,A-18,A)
150 PRINT"[HOM]" TAB(5);:FOR B=1 TO 24
160 PRINT MID$(B$,B,1)"[CD][CL]";
170 NEXT B
```

```
180 NEXT A
190 PRINT"[HOM]":C$="[HOM]"
200 FOR A=1 TO 24
210 PRINT C$ TAB(5);
220 PRINT
230 B$=MID$(A$,1,24-A)
240 PRINT TAB(5);:FOR B=1 TO LEN(B$)
250 PRINT MID$(B$,B,1)"[CD][CL]";
260 NEXT B
270 C$=C$+"[CD]"
280 NEXT A
290 PRINT "[HOM]";:FOR A=1 TO 24
300 PRINT TAB(5)" "
310 FOR C=1 TO 50:NEXT C
320 NEXT A
```

```
10 REM ************************
20 REM * UTILITY BOX - PART 5 *
30 REM *     (C) SEPT '88     *
40 REM *      WRITTEN BY      *
50 REM * MADHU   SURENDRANATH *
60 REM * 'THE MULTI  MESSAGE' *
70 REM ************************
80 REM FORGET ALL REM LINES TO USE AS PART OF YOUR OWN PROGRAM
90 REM YOU CAN DEFINE A$ AS YOUR OWN MESSAGE
100 A$="...THIS.IS.A.DEMO.MESSAGE...."
110 PRINT CHR$(147)
120 FOR A=1 TO LEN(A$)-1
130 PRINT "[HOM]"TAB(A);
140 FOR B=1 TO 10
150 PRINT " [CD][CL]" MID$(A$,A,1);
160 NEXT B
170 NEXT A
```

★ Program Submission Procedure ★

DO NOT submit any program or routine that you do not either own or have property authority to do so.

ALWAYS include your name, address and the date on all material and any enclosures.

Do not forget to make it clear exactly which computer/s your program or article is applicable to.

Include ROM or DOS versions wherever they are pertinent.

If you have to submit work which is hand-written then you must make sure it is printed clearly.

Number all pages.

Never use staples. Use paperclips if necessary.
If you are saving your program to tape then save it AT LEAST twice on each side.
When you save a program on disk save it twice and call the second file "BACKUP".

Remember to label all tapes and disks with your name and the title of the program. Label tape or disk with your name and the name or title of the program.

Always ensure that disks are well packaged. They should ideally be sent in a commercial disk mailer or at least packed between two pieces of hardboard or rigid plastic.

Please allow at least 8 weeks for acknowledgement as all programs have to be thoroughly tested and made into a suitable format.

Enclose a self-addressed stamped envelope or package if you would like your program to be returned.

★ Programming tips ★

If you can, use CHR$(x) type commands instead of those hard to read graphic symbols.
If necessary renumber your program on completion a many readers use auto number utilities to ease typing in.

Try to keep instructions within the program itself at a sensible level. You can expand on them within the accompany text if necessary.

TEST your programs before submitting them or even better get a friend to test them for you.

If a program contains machine code data please use decimal and not hex as there are fewer digits to be confused. Try and keep the same number of data statements in each line. Please add some form of error checking if your program contains more than five lines of data.

Having a Party on Compunet

Perhaps the most popular of Compunet's specialised communications channels is Party-Line, commonly referred to as Pline.

Party-Line is a real-time, multi-user chat system. Many of the big American online systems have such facilities, often in the form of Citizens' Band simulators with worldwide access. Such systems allow a number of users to send messages to each other, each seeing what the others are typing. This happens in real-time so that when a user hits 'Return' at the end of a line the message immediately appears on the screen of all other users in that conversation. Having a range of 'CB channels' they allow a number of conversations to be in progress independently.

Rather than attempt to emulate the Citizens' Band model the Compunet Party-Line simulates a party. Users arrive in a 'lobby' and find that it leads to a number of rooms, each containing a group of Cnetters holding a conversation. If none of the conversations interests then any user can go into a new room and start a conversation on any subject dear to the heart.

GOTO PARTY takes the Compunet User to a directory containing the Party-Line manual, some software and the Party 'Link'. The manual runs to seventeen screens which gives some idea of the range of facilities provided. Having downloaded the manual, and perhaps printed out the command reference section the 'Link' entry can be 'downloaded'. This sets up the connection between the user's machine and a special subsystem which controls the Plining.

The Party-Line screen contains up to four overlapping windows for help, history, incoming and outgoing messages. The history window allows the user to scroll up and down through approximately the last hour's chat using the cursor keys. It disappears when not in use. A standard Compunet 'duckshoot' menu along the bottom of the screen provides facilities to print or save to disk the chat seen in the last hour.

Once in the Lobby a list of fellow participants and the 'rooms' they are in is displayed. Users are allowed to use aliases rather than their Compunet user names if they wish. I find that 'Froggy' is more memorable than my Compunet user name, 'JML1'. A '*who' command shows both the user name and alias of each participant and which room they are in. The lobby also contains a mini-bulletin board that contains up to twenty messages, older messages being lost as new ones are added.

A maximum of twelve rooms can exist at one time with up to eight people in each. Any user can create a new room, with a name of their choice and make it private or public. Creating a private room makes the user the 'key-holder' and no one can enter it, or 'hear' the conversation therein without the key-holder's consent.

Within each room typing a message will cause it to appear on the screens of all other users in that room. Very occasionally a conversation may be disrupted by a thoughtless user. Under such circumstances two commands, '*hush' and '*ignore' allow the problem user to be cut out of the convesation. Issuing the '*hush' command prevents any messages being received from the disruptive user, though he or she can still hear the issuer's messages. The '*ignore' commands stops either party from hearing the other.

In the PARTY directory on Compunet there is a sub-directory called 'Your Party Pieces'. This contains extra software to enhance the Party-Line user interface. 'The Final Link' terminal software, for example, adds music from Robb Hubbard and a scroller to enjoy if the conversation begins to flag.

Party-Line costs an extra one pound an hour in addition to normal Compunet and phone charges. Its proven a big success for Compunet, nearly five hundred users have voted it an average of seven out of nine in Compunet's 'Eudemonic Feedback System' (that's voting facility to you and me!)

Of course, the Compunet modem for the Commodore C64/128 can be used for much more than just accessing the various services offered by Compunet. One of the pieces of software available for sale in the C84 communications utilities area (GOTO COMMSU) is C64 User-to-User software. At twelve pounds this software allows two C64 users, equipped with Compunet modems, to establish a direct telephone link between themselves and chat using a system very similar to Party-Line.

The advantage of User-To-User connections over a normal phone call is that files can be transferred between the computers while the conversation is going on. User-To-User provides three windows on the screen. One contains text typed by the user, the second shows incoming messages from the other user and the third shows the current status of the file transfer.

User-To-User works well but, because of limits in the tolerance of certain components in many of the earlier Compunet modems, such links are normally limited to about thirty miles – a local call away.

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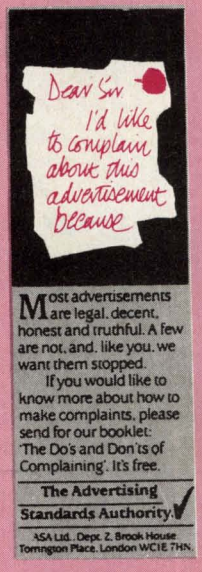

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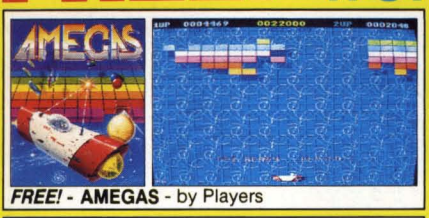

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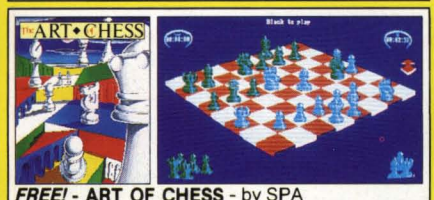

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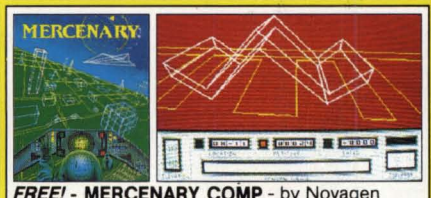

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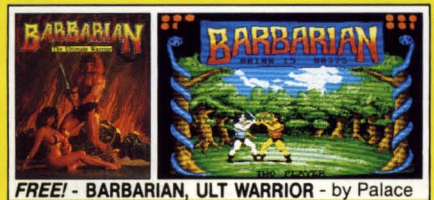

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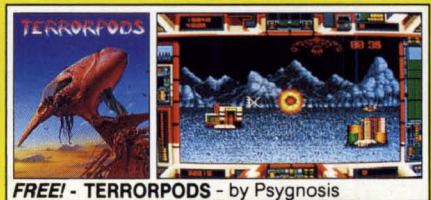

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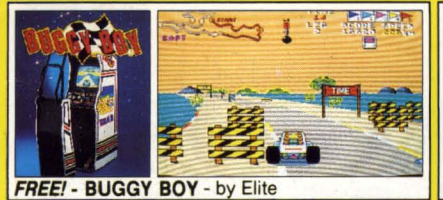

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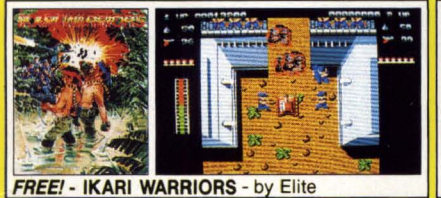

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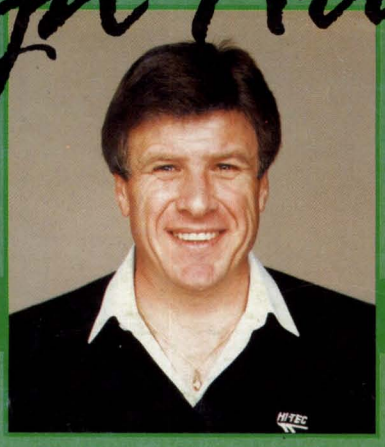

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